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THE INSTITUTE OF ECONOMICS
INVESTIGATIONS IN INDUSTRY AND LABOR

MINERS' WAGES AND THE COST OF COAL

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MINERS' WAGES AND THE COST OF COAL

An Inquiry into the Wages System in the Bituminous Coal Industry and its Effects on Coal Costs and Coal Conservation

BY

ISADOR LUBIN

WITH THE AID OF THE COUNCIL AND STAFF OF THE INSTITUTE OF ECONOMICS

5373

FIRST EDITION

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DIRECTOR'S PREFACE

EVERYONE is aware in a general way that for many years conditions in the coal industry have been chaotic. The strikes of 1919 and 1922 left consumers with empty bins. Coal prices have fluctuated widely, reaching what seemed extortionate levels at one period and falling below actual cost of production at another. The miners and the operators have showered abuse on one another and each has held the other responsible for the disorder that has prevailed. Meanwhile, despite official investigations by both Houses of Congress and the vast amount of factual data assembled by the United States Coal Commission, public opinion has been much at sea.

It has been with a view to focussing public attention on those aspects of the coal problem which are of vital significance that the Institute of Economics has undertaken a series of studies on coal, of which this volume is the first. The other studies in the series are concerned with industrial relations, the possibilities of "superpower" in the distribution and consumption of coal, and the general problems involved in reorganizing the coal industry if it is to function efficiently. The present volume undertakes to analyze the peculiar wages system that has been developed in the bituminous-coal industry, and to show how this system has affected (1) the earnings

of the miners, (2) the cost of producing coal, and (3) the exploitation of our coal resources. We believe that no adequate solution of the coal problem is possible unless it be based on a clear understanding of the relation of miners' wages to the cost of coal.

The material in this volume has been gathered in part from first-hand field study, in part from the reports of official investigations, in part from published proceedings of operators' and miners' conventions and conferences, and in part from unofficial but none the less pertinent information contained in labor and coal periodicals. The manuscript has been submitted for criticism, as to the accuracy and adequacy of the factual data, to mining engineers, to coal operators, and to representatives of labor. The Institute alone, however, is responsible for the conclusions.

H. G. Moulton.

Institute of Economics,
Washington, D. C.

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The author wishes to make acknowledgment of the aid given him by the coal operators and their representatives, both union and nonunion, and by the district officials of the United Mine Workers of America. Fred G. Tryon, of the United States Geological Survey, Leo Wolman, Director of Research of the Amalgamated Clothing Workers of America, G. E. Greer, formerly of the engineering staff of the Pocahontas Coal and Coke Company, and Carter Goodrich have made valuable criticisms and suggestions. Matthew Woll and Whiting Williams have read the manuscript; and the first nine chapters were submitted to Mr. A. M. Ogle, former President of the National Coal Association. The aid of the Council and the staff of the Institute has been invaluable. To Helen R. Wright, of the Institute staff, the author is particularly indebted for assistance in organizing the entire study and for all of the material in Chapter VII.

ISADOR LUBIN.

WASHINGTON, D. C.
January, 1924.

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MINER'S WAGES AND THE COST OF COAL

INTRODUCTION

During the last ten years the American public has on three different occasions found itself in a position where it could not secure an adequate supply of bituminous coal. Stocks were so limited on two of these occasions that both the Federal and State Governments found it necessary to supervise the distribution of the supply available. During the last ten years, also, we have seen the average retail price of bituminous coal rise from $5.48 a ton in January, 1913, to $12.53 in November, 1920; fall to $9.48 by June, 1922, and jump again to $11.31 by November, 1922. In this interval, too, we have witnessed a rise in wholesale immediate delivery or "spot" prices from $1.47 per ton at the mine in January, 1913, to $9.51 in July, 1920; a drop to $2.05 in March, 1922; and a further jump to $6.73 during the four months that followed. The loss and inconvenience suffered by the consumers of bituminous coal as a result of this unstable state of affairs does not lend itself to definite measurement. Any quantitative estimate of the cost of such a condition can not go beyond the statement that in a single year the value of our coal output

at the mine mouth advanced from $1,161,000,000 in 1919 to $2,103,000,000 in 1920, an increase of 81 per cent, while the available bituminous supply was increased from 406,000,000 tons to 564,000,000 tons, or approximately 21 per cent.

Few of us realize how vitally these fluctuations affect us. The bituminous coal used for household heating averages less than one-half ton per inhabitant. Consequently the full effects of these price changes are not felt directly by our population. Yet in last analysis the unstable character of coal prices and the coal supply affects us all. "Coal comes into our homes, not only by way of the chute to the cellar bin, but over the wire and through the pipes and also, in no small amounts, by the kitchen door. Our electric current and gas and water and ice all represent coal—more coal than we are likely to realize."[1] American industry consumes each year almost five tons of coal for every person in the country. It takes 140,000,000 tons of coal to keep our locomotives going. Approximately a quarter of a billion tons are burnt each year in the form of coal and coke by our mills and factories; and the gas and electricity that we use for cooking, lighting, and heating represents each year one-third of a ton of coal for every man, woman, and child in the United States.

If one were to turn to the owners of our coal mines for an explanation of the problems which beset the coal industry he would be told that "the national

[1] Smith, G. O., What Coal Means to Us: The Atlantic Monthly, p. 532, Oct., 1922.

policy of the United Mine Workers of America is the chief cause of the unsatisfactory condition of the coal industry today; that it [the United Mine Workers of America] imposes on all consumers of coal an unreasonable burden of cost; that it renders the supply of coal uncertain, with attendant fluctuations in price."[2] If, on the other hand, we were to accept the assertions of the officials of the United Mine Workers of America, it is the "profiteering" of the coal operators that causes coal shortages and the skyrocketing of coal prices.

Now as an actual fact neither of these groups is to any very large degree to blame for the conditions that prevail in the bituminous-coal industry. The real cause lies in the very nature of the industry, its general organization, the character of our coal resources, our legal concepts of property rights in natural resources, and our blind insistence, as expressed in our antitrust laws, on the maintenance of competition, no matter what the results of such competition may be. Mr. Herbert Hoover has said that the coal industry is the worst-functioning of industries. The demand for coal is seasonal. During the last thirty years the capital and labor engaged in the bituminous-coal industry have been idle for an average of 93 working days in every calendar year. Moreover, our mining capacity and labor force are much larger than any immediate possible maximum needs would justify. Our coal resources are enormous, are readily accessible, and

[2] Brief of the Bituminous Operators' Special Committee filed with U. S. Coal Commission, Apr. 5, 1923.

require a relatively small initial investment for operation. In addition "no matter how overburdened the railroad serving a coal field may be, it is obliged by law to put in a siding and supply of cars for every new operation."[1]

Every time coal prices have arisen new mines have been put into operation. New men have been taken on. The opening of these new mines has meant that the available supply of railroad cars had to be allocated to a larger number of operators. Since the supply of coal cars could not be expected to increase with the growth in the number of mines the newer operations have secured cars at the expense of the old. Fewer cars for older operations has meant greater irregularity of operation, for coal can not be conveniently stored at the mine mouth. Consequently, both the operator and the miner have suffered. And once new mines have been put into operation, the general forces prevailing in the industry have tended to keep them in operation, virtually irrespective of the price of coal. Curtailing of mine output means an increase in unit costs, and during periods of low prices when profits are already small the operator has not dared to increase his costs. Many mines have found it cheaper to continue producing at a loss than to shut down entirely. Moreover, many districts have been burdened with a leasing system that has obligated the companies to remove a given

[1] Tryon, F. G., Irregular Operation of the Bituminous-Coal Industry: The American Economic Review Supp., vol. 11, no. 1, p. 61, Mar., 1921. (See p. 286.)

tonnage each year, irrespective of market demand or price.

The condition of the coal industry had become so precarious by 1914 that the operators of Illinois and Indiana asked the President of the United States to direct the Federal Trade Commission to pay special attention to their needs. Owing to the competitive conditions prevailing in the industry, they said, they had gotten into a position "where they found themselves unable to prevent waste or to enjoy sufficient profit, if at times they could make any profit, to properly equip their properties for the protection of the miners."[1] Under such conditions is it any wonder that the industry has not developed the organization and technique that has characterized other industries? Mr. John Hays Hammond, chairman of the United States Coal Commission, has described the coal industry as "the worst conducted, from an engineering point of view, that I have ever seen."

With the growth in the demand for coal during the war period came a rise in coal prices, followed by the opening of new mines in numbers never before equalled. It is estimated that our annual bituminous capacity increased from 675,000,000 tons in 1915 to well above 800,000,000 tons in 1922.[2] Our maximum combined consumption and exports, however, has never exceeded 579,000,000 tons.

[1] Lesher, C. E., Introductory Survey of the Bituminous-Coal Industry: The American Economic Review Supp., vol. 11, no. 1, p. 52, Mar., 1921.

[2] Tryon, F. G., ibid., p. 62. Cf. also Prelim. Rept. U. S. Coal Commission, Jan., 1923.

The labor force of the industry was increased during this period by over 100,000 men. Today, it is said, we have over 200,000 more men than our production would justify.[1]

In spite of this condition the American public found itself paying as much as $9.50 a ton for "spot" bituminous coal in the summer of 1920; and in spite of this price enough coal was not at all times available to meet our needs. Within twenty months we were getting coal again at $2.05, a price which at many mines did not cover production costs.

A complete explanation of this incongruous situation would be beyond the limited scope of this volume. Its cause could be found only in a thorough analysis of the most important aspects of the coal industry—an analysis that will be found in another volume of the Institute of Economics.[2] It is our purpose here to enquire into but a single factor in the industry and to see how far this one factor bears on the relation of the coal problem to the American public. This factor is the wages system in the organized fields of the bituminous-coal industry.

There are approximately 663,000 men employed in the bituminous-coal fields of the country. Of these about 60 per cent are members of the United Mine Workers of America. These men represent 30 different crafts and turn out a little less than two-thirds of the coal produced in the United States.

[1] Prelim. Rept. U. S. Coal Commission, Jan. 15, 1923.

[2] Hamilton, W. H., and Wright, Helen R., The Bituminous-Coal Problem: Investigations in Industry and Labor, Institute of Economics, Washington, D. C. (In preparation.)

The wage rates paid to these men are more or less directly determined at regular conferences of the representatives of the employers and employees of four central coal States. These conferences, known as Interstate Joint Conferences, determine the basic wage rates for the various crafts in the industry. To these basic rates all others within the area are adjusted. Changes in these basic rates serve also to determine changes in wage rates in all other organized coal fields of the country. During periods of fairly active demand for coal these changes are usually accompanied and sometimes even anticipated by rate changes in the nonunion districts.

Underlying the wages system that has been developed through this machinery is a certain definite purpose. This purpose is to maintain the principle of competitive existence for all operators and miners. To bring about this end certain differentials have been adopted. That is to say, given amounts are added to or taken from the standard rates to recompense the miner or the operator for differences in physical and geographical conditions. Differentials are also used in fixing the rates paid to machine miners as distinguished from hand or pick miners.

The coal strike of 1922 was waged around the question of the continuation of this wages system. It is with the theory and principles underlying this system, the machinery for making it effective, the methods of applying it, and the wage-rate structure that has been developed in the union coal fields as a result of its application that we are here concerned. It is the purpose of this volume to analyze this

system and to enquire how it has affected the welfare of all who are concerned with the coal industry.

In view of the bearing that the system of wage-rate determination in the organized coal fields has upon the problems facing the coal industry, this investigation attempts to answer the following questions:

I. What are the economic principles that underlie the present wages system?
II. How have these principles been applied in the determination of wage rates?
III. What is the form of the wage structure built upon them?
IV. What effect has the wages system in the organized coal fields had upon—

A. The general consuming public:
1. How has it affected the market price of bituminous coal?
2. How has it affected the installation and use of machinery?
3. What bearing has it on the number of mines in operation?
4. What is its relation to the number of men that must be supported by the industry?
5. What effect does it have on the exploitation of our coal resources?

B. The operator:
1. How does it affect the wage rates he must pay?

2. What bearing does it have upon his competitive position in the market and his ability to maintain operations?
3. What relation does it have to the profitableness of installing and using labor-saving devices?

C. The miner:

1. What effect does it have upon his opportunity to work?
2. How has it affected the wage rate he receives, particularly as compared to rates paid in other industries?
3. How has it affected the general economic status of the various groups of miners in different sections of the country?

No attempt has been made to enter into a complete analysis of the rate structure in the unorganized coal fields, and mention will be made of the nonunion situation only in so far as it affects the rate structure in organized districts. The author fully realizes the profound bearing of the nonunion fields on the effective working of the wages system in the organized districts. Indeed, the very realization of the significance of this relationship has led to its consideration being reserved for a later volume.

PART I

THE RATE-MAKING MACHINERY

CHAPTER I

THE MINING OF COAL

The bituminous coal resources of the United States are made up of more or less horizontal seams of various lengths and widths which lie at different depths beneath the earth's surface. These seams, ranging in thickness from a few inches to more than 20 feet, underlie here and there all but thirteen States of the union. In many places there are two or more seams, separated by strata of rock. A seam less than 30 inches thick is not usually workable on a commercial basis in the United States.

Commercial mines are operated at present in twenty-nine States. Their average annual output approximates 500,000,000 tons. About 89 per cent of our bituminous coal, however, is mined in two major areas: The Appalachian region, extending from northern Pennsylvania into Alabama and embracing parts of Ohio, Maryland, Virginia, West Virginia, eastern Kentucky, Tennessee, and Georgia; and the Eastern Interior region, comprising Illinois, Indiana, and western Kentucky. The former region produced 67 per cent of our bituminous coal output in 1922; the latter 22 per cent.

I. METHODS OF MINING COAL

The main methods of mining coal may be classed as (1) "open work," frequently known as "stripping" or "open-pit mining," and (2) "underground" or "closed-work" mining. Of the latter there are two types; the one most commonly employed in the United States being the "room and pillar" method as contrasted to the "long wall" method almost universally used in Great Britain and continental Europe.

1. Open-work Mining.—Strip mining, practiced to some extent in Alabama, Missouri, Kansas, Indiana, Ohio, Pennsylvania, Illinois, and Oklahoma is nothing more than the removing of such soil as overlies a seam of coal and then digging the coal out by hand or with a steam shovel. Since the amount of soil overlying most of the American coal seams is too great to make profitable the use of this type of mining, the underground method predominates. Only 1.2 per cent of the coal mined in the United States in 1921 was dug by the open-work method.

2. Underground Mining.—When coal lies too deep for stripping operation it is usually reached by sinking a shaft vertically from the surface. In places where the general contour of the country is hilly the seam of coal may crop out on a hillside or in a gully. Under such circumstances a horizontal tunnel, sometimes called a "drift," or "slope," may be driven into the side of a hill and the coal brought out through this opening. Once a shaft is driven down to a bed of coal either the "long-

wall" or the "room-and-pillar" system of cutting away the coal will be used.

Of the two methods of underground mining, i.e., "long-wall" and "room and pillar," there are endless modifications. Each may be separately employed, or the two may be merged into each other to so great an extent that it becomes well-nigh impossible to say to which system some methods belong.

Long-wall Method.—The main characteristic of the long-wall method is the digging away of the entire seam of coal and the filling of the open space either by allowing the earth overlying the coal to fall down and close in behind the miners as they advance or by packing in such waste rock as comes down with the coal. In many mines the cutting of the coal starts at the shaft and continues toward the border of the property, paths or travelling ways radiating from the shaft to the places where the coal is dug being kept open. These paths, technically called "entries," serve as haulage ways over which the coal is transported in mine cars to the shaft, where it is then hoisted to the surface and dumped into railroad cars. In other mines "entries" are first driven from the shaft to the border of the property to be worked and the digging of coal begun there, the miners gradually digging their way back toward the shaft.

The former method of "long-wall" mining, called the "advancing" type, is most commonly employed, for it is quite evident that the normal output of the mine is under this system attained very shortly

after the shaft has been sunk, whereas in using the latter method, the "retreating" type, roads or entries must be driven from the shaft to the boundaries of the property, an undertaking which may require considerable time, before any considerable amount of coal is gotten out of the mine.

Successful long-wall mining depends on a more or less steady market for the coal and on a steady supply of labor, for even a short stoppage of operation may result in serious damage to the working area through the caving of the roof. In the pillar method this is less important.

Room-and-Pillar Method.—The room-and-pillar method, as indicated by the term, is one in which "rooms" or "chambers" are cut out of the coal. These rooms are separated by walls or "pillars" of coal which serve to withstand the pressure of the overlying strata and to keep the rock and earth above from caving.

From the bottom of the shaft, tunnels called main "entries" are driven forward horizontally into the coal. These entries, which are from 6 to 21 feet wide and about 6 feet high, serve as haulage ways and air courses for the mine. Two or more main entries are commonly driven parallel to each other, one serving as the intake course for the fresh air that must be pumped into the mine, and the other serving as a return course. If one entry should become blocked by sections of the roof falling or by any other accident, the air current and haulage may be shifted, provided always that air can pass through the blocked entry.

These parallel entries are connected at intervals of from 40 to 90 feet by "breakthroughs" or "crosscuts." These openings are of about the same width as the entries and are at right angles to them. As the entries advance new crosscuts are made as close to the face (the most advanced part of the entry) as the desired intervals will permit, while the crosscuts farther back are progressively closed. This is to force the air currents forward to where the men are at work, for the tendency of air currents is to follow the shortest possible route. If the early "breakthroughs" were not closed, the air currents would leave the intake course at the first crosscut near the shaft and enter the return course going back to the shaft, in that way depriving the men working at the "face" of any fresh-air supply.

After the main entries have been advanced for some distance, "cross" or "side entries" are driven at fixed intervals, usually at right angles. These side entries are several hundred feet or more in length, depending on the area of the property to be worked. It is from the coal blocked out by these side entries that the main output of coal is obtained when a mine is in normal operation. All work done and all coal dug prior to the getting of the coal from these pillars is but incidental to the development of the mine.

The average mine, then, at the beginning of operation, would consist of a number of rectangular blocks of coal separated by long halls or side entries, all of which run at right angles into a "main entry" leading back to the shaft.

II. GETTING OUT THE COAL

The main output of a mine's coal is obtained by cutting into one of the walls of a "side entry." The empty spaces left after the coal has been dug are called "rooms." A room is begun by driving an opening at right angles to the entry and of about the same width. These openings, called "necks," range from 6 to 25 feet in length, and then widen out on one side at an angle of about 90° into a "room." What we have here in reality is another entry (neck), which opens out from the side entry, and which after having run some little distance abruptly widens at a right angle on one of its sides into a room. It is like a room in a house at the end of a hall, in which one wall of the hall is continued and the other is not. Most rooms have a width of about 20 feet, but some of them are as narrow as 12 feet or as wide as 40 feet. Most of them run from 250 to 400 feet long.

Few or many "rooms" may open out from a given side entry, the number being dependent on the necessary thickness of the wall that separates them. This thickness will, in large part, be determined by the amount of pressure exerted by the overhead earth, and this, of course, will vary with the depth of the mine and the nature of the overlying strata.

The rooms, like the entries, are connected with one another by breakthroughs. These breakthroughs are cut through the pillars of coal that serve as walls between the rooms. Their purpose, like that of the

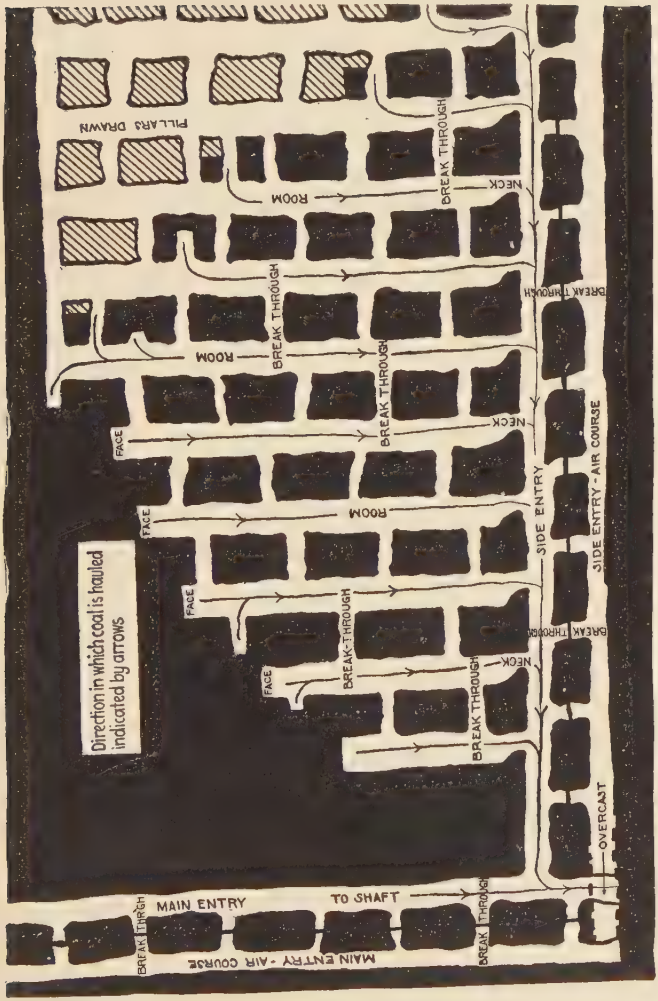

FIG. 1.—MAP OF SECTION OF A MINE IN WHICH PILLAR DRAWING HAS STARTED.

connecting entries, is to permit the circulation of air and to supply a short cut for the men from room to room.

The necessity of leaving large pillars as walls reduces the amount of the coal that can be mined. Indeed, the amount of coal left in the pillars during the regular working of a mine ranges from 8 to 65 per cent of the seam. After the rooms have been worked out as far as is safe and practicable, attempts are made to extract the remaining pillars. This process is called "pillar drawing" or "robbing pillars" and, unless carried out under good technical direction, is somewhat dangerous. Yet, mines are known in which 98 per cent of the coal has been removed by robbing pillars. Most of such work is done by experienced miners, who receive special wage rates. (See p. 19.)

The regular output from the mine is obtained from the rooms. It comes from the face by one of three processes: (1) blasting off the solid; (2) pick mining; (3) machine mining.

1. Blasting off the Solid.—Much coal is mined by drilling a hole in the face, filling it with powder, and firing it, the blast loosening the coal from the wall. This is called "blasting off the solid," and has the disadvantage of breaking the coal into relatively small pieces as well as scattering it considerably. A relatively small proportion of the coal output of the country (about 13.9 per cent in 1921) is "blasted off the solid."[1]

2. Pick Mining.—Since lump coal has a greater

[1] U. S. Geol. Survey Weekly Rept. 280, Nov. 25, 1922.

commercial value than fine coal, it has become the practice to "undercut" the room walls before blasting. "Undercutting" is cutting a horizontal or wedge-shaped slit 4 to 6 feet inward in the bottom of the face. Often another similar slit is cut near the roof, and sometimes vertical slits are cut at each end of the wall. These slits lessen the resistance offered to the exploding powder and enable a small blast to break the coal in large lumps. The cutting of these slits is technically known as "mining"; the work is done with either a pick or a cutting machine.

The pick miner must be a man of varied accomplishments. He undercuts the coal, drills the hole for the powder, packs the explosive (which, incidentally, he must purchase himself) into the hole, cleans the coal of any impurities that may fall with it, and loads the coal into the mine cars. In some mines he also fires the blast that loosens the coal from the face. In several States, however, the law requires the blasting to be done by a specially designated "shot-firer."

In addition to the possession of brawn, then, the miner must have some knowledge of explosives and blasting. The coal that he digs is loaded into mine cars and hauled away to the shaft over a miniature railroad. To work rapidly he must have the mine car that he is loading close at hand; and in a room 20 feet wide and probably 250 feet long this means that he must do much extending or moving of the track on which his car runs—for the care of the track in his room is usually part of his job. Again,

the possibility of rock falling from the ceiling or roof of the room is always present; and safety demands that the roof be propped with timbers—by the miner, of course, who must know how to sense the "feel" of the roof and how to test it and timber it properly. In rare cases, especially in mines working on a coal seam that is not very thick, the distance from floor to roof is not sufficient to allow a mine car to enter; and the miner must either dig up the floor or cut down the roof. Finally, unless the mine has mules available, he must push the loaded car, weighing as much perhaps as five tons, into the entry. Electric haulage motors are used in some mines.

All of these tasks are incident to the pick miner's main function; that is, cutting and loading coal. Generally he receives no extra pay for doing these things, for it is assumed that they have been taken into consideration in fixing the pay he receives for mining a ton of coal.[1]

3. Machine Mining.—The undercutting of coal by hand is fast being supplanted by machine undercutting. The average machine, managed by two men, can each day undercut an amount of coal, which when blasted is sufficient to keep ten to twelve men busy cleaning and loading. These "loaders" are not as highly skilled as the pick miners.

Although the practicability of undercutting coal

[1] Pushing cars more than a certain distance is paid for in certain sections of the country under the designation "deficiencies." The same is true also of "brushing"; i.e., digging up the floor or taking down the roof.

with a machine is to a considerable degree fixed by the physical conditions of a mine, the profitableness of supplanting pick mining by machine mining plays a most significant part in determining whether one method or the other shall be used. And the relative profitableness of the two methods depends largely [1] on the relation of the wage rates of the pick miners to those of the machine runner and of the men who load the coal cut by the machine.

Almost two-thirds of the coal mined in the United States is undercut by machinery. The actual production of such coal in 1921 was over 272,700,000 tons, or 65.6 per cent of the total putput of the country for that year. Ohio, which is the fourth largest producer in the country, mined 91.6 per cent of her coal by this method; and West Virginia, the second largest producer, 77.2 per cent. The significance of these figures becomes quickly apparent when one realizes that in 1891 only 6,000,000 tons, or about 5 per cent of a total output of 118,000,000 tons, was machine mined.

An undercutting machine is operated by a "machine runner" and a helper. In some mines the machine runner also drills the holes for blasting. He, of course, must thoroughly understand his machine and must be able to make necessary adjustments and minor repairs, and, since most machines are run by electric power, he would better possess a knowledge of the practical fundamentals of electricity. It is usually the function of the machine runner to

[1] See pp. 100–110.

move his machine from room to room and, when he finds that any of the props in a room must be removed before he can get his machine up to the face, it is part of his job both to remove the props and to replace them after he has finished cutting. The machine runner has a helper who assists in moving the machine, setting it up ready for cutting, and placing any timbers that may be necessary for protection. While the machine is in operation the helper shovels away the cuttings so that the operation of the machine will not be interfered with.

Once the machine-cut coal has been shot down, it is shovelled into the mine cars by the "loaders." There are usually two loaders in each room, and they do virtually all of the work done by the pick miner except the actual cutting of the coal. They take care of the roof, lay the track, furnish the explosives, pack the shots, clean the coal, and load it. The runners, helpers, and loaders, like the pick miners, are commonly piece workers and receive a given rate for each ton cut and loaded. There are, however, scattered mines in which machine cutters are paid by the day.

In recent years coal-loading machines have been developed; and in some (relatively few) mines these automatically load the coal into the mine cars under the supervision of one or two men. Some of these machines have a loading capacity of a ton a minute. In some mines the loader shovels the coal on to a conveyer belt, which conveys it to the entry and loads it into the mine cars.

III. SERVICE OCCUPATIONS

The operation of a mine requires the services of many crafts other than that of the miners themselves. The coal, once loaded, must be hauled to the shaft, raised to the surface, weighed, cleaned, and dumped into railroad freight cars. All of this requires the maintenance of a staff of mule drivers, motormen, car couplers, engineers, firemen, electricians, blacksmiths, etc. These men are usually divided into two groups and are classified as "outside" and "inside" workers.

1. Outside Workers.—If one were to visit the ordinary shaft mine, he would be struck immediately by the great number of men around the workings, the variety of things being done, and the general factory aspect of the surroundings. Approaching a mine one sees in the distance a tall smokestack sending forth its clouds of black smoke. For the moment one thinks that here is a factory in a field by the roadside. For here are several buildings of different sizes and shapes; long stretches of railroad sidings; numerous freight cars, some empty and others filled to the brim with coal. The occasional shriek of a steam whistle and an intermittent roar which in many ways resembles that of a foundry is heard.

On looking round one finds a boiler room with its "firemen" busily engaged in feeding the flames of the large furnaces; a power plant with its dynamos under the constant surveillance of an "engineer"; a blacksmith shop, where the tools of the miners

are kept in efficient condition by the "boss blacksmith" and his "helpers"; a small machine shop, where the equipment of the mine is constantly undergoing repair under the supervision of the "machinist" and helpers; a stable where mules are housed and cared for by "stable boys"; and a high tower, called a "tipple," to which the coal mined is hoisted by an elevator or cage and is dumped into the empty railroad cars below. Up on the "tipple" one finds a "weighboss," a representative of the company who weighs the contents of each mine car as it comes up to the tipple and credits it to the miner who dug it. Each mine car of coal has on it a check that identifies the workman who loaded it. This check is removed by a "check puller" who hands it to the "weighboss." In a union mine one will also find in the "tipple" a "check weighman," employed by the union to check the company weighman and see that the miner is given full credit for all of the coal dug by him. In a well-equipped mine the mine cars are automatically tipped and unloaded as soon as they reach the top of the tipple. In many mines, however, there are "pushers" who push the mine cars off of the elevators and "tippers" or "dumpers" who unload them.[1] When coal is to be screened, the screen in many mines is in charge of a "screener."

Looking down from the tipple on the railroad track underneath, one sees in and around the railroad cars, which are being loaded with coal, "coal-

[1] In drift mines there are also "couplers" who uncouple the train of mine cars as it comes out of the tunnel.

cleaners," who pick out the occasional pieces of slate and other rock that happen to be in the coal, and "trimmers," who trim the loaded car so that its surface will be more even, thus lessening the probable loss in transit. One may also notice a "slack hauler," hauling a small car of small coal or slack from the bottom of the tipple to the boiler room, and here and there a "slate dumper" or "dirt dumper," taking care of the mine cars loaded with slate and other refuse—by-products of coal mining.

Getting down on the ground again one approaches the entrance to the shaft. Up and down this shaft, in an elevator called a "cage," the loaded and empty mine cars are hoisted and lowered from the mine below to the top of the tipple; up and down it the miner travels when he comes from and goes to his work.[1] The cage is controlled by a first, second, or third class engineer, whose rating and wage are determined by the average tonnage sent up to the tipple each day.

Close observation will show many other men working around the immediate neighborhood. Here, a "greaser" oiling the mine cars; there a car "repairman" and his helpers fixing up a mine car; a "sandman" who dries the sand to be used on the tracks down in the mine to keep the little electric locomotives which haul the mine cars from skidding; an occasional "carpenter" who keeps the building in repair; "teamsters;" "yardmen"

[1] In many modern mines an auxiliary shaft is used by the men. In some States such a shaft is required by law.

who take care of supplies, timber, etc.; and other laborers doing miscellaneous jobs.

It should be evident then that the operation of a mine requires the maintenance of a considerable and varied force of men on the surface. These men, whose function it is to keep the plant going rather than to turn out coal, are called "company men" and are paid on either a daily or monthly basis.

2. Inside Workers.—Down in the mine itself the need for service men is even more strikingly evident. One enters the elevator (or "cage") and is dropped at a terrific speed to the bottom of the shaft. On getting out of the cage one notices several "cagers," who keep pushing loaded cars into the cage and taking empty ones out. As the empties are pushed from the cage they are coupled together by "couplers" or "snappers" into a train, called a "trip." If the mine is efficiently equipped one may find also a small underground machine shop with its "machinists" and "machinist helpers" re-tiring the wheels of a locomotive, or fitting a new part to a cutting machine. If the mine is at all troubled with water, a "pumpman" and a "pipeman" will in all probability be keeping both pumps and pipes in efficient condition; this work is exceedingly important.

The most significant impression one gets at first is the absence of miners. One sees trip after trip of cars loaded with coal coming out of the darkness of the tunnel, but no actual cutting or loading of coal. To witness the latter, one has to travel along the entry to the rooms. To save time it would be

advisable for the visitor to ride to the room on one of the "trips," or trains. One gets into one of the many empty mine cars which make up the "trip" that is hauled by an electric locomotive controlled by a "motorman," who has with him a "trip rider," who helps in making up the trip, sees that it is properly coupled, and often attends to the switching. On the way one may pass a laborer cleaning up the coal that has fallen from the mine cars; an "electrician" or "wireman" and his helper looking after the trolley wire that carries the current for running the locomotives and the cutting machines; a "track layer" repairing or laying new track; or a "timberman" setting up timbers that have been knocked down by a derailed car.

If by chance the track has any considerable grade one will run across a "spragger" whose duty it is to throw a sprag between the spokes of the car wheels to control its speed. A sprag is a piece of wood about 18 inches long with pointed ends which when put between the spokes of the car wheel catches on the bottom of the car and prevents the wheel from turning, thus acting as a brake.

When the trip reaches its destination the empties are uncoupled and the locomotive attached to a waiting trip of loaded cars. The empties are then distributed by the "boss driver" to the "mule drivers," who hitch their mules to the cars and drive them into the side entries and the rooms. In the entries one may find a "brattice-man" or mason filling up a breakthrough. If the breakthrough serves for the passage of men and cars it may be

closed by wooden doors, which are opened and closed by a "trapper boy" or "nipper."

Finally, one reaches the rooms where the miners are at work at the face. In a mine where the division of labor has been highly developed various other men may be in the rooms doing the work which is usually done by the miner. For example, a "brusher" or "rock man" may be taking down part of the roof or digging up the floor; "pushers" or "trammers" pushing the cars out into the entry; a "driller" drilling the holes for the blasts; or a "trackman" extending the track toward the face. When these things are done for the miner, they are presumably taken into consideration in fixing the tonnage rate he receives.

All of the underground men, like those on the surface, are called "company men" and, with the exception of the pick miners, loaders, and in most mines the machine cutters, are paid on a daily wage basis.

The striking characteristic of coal mining is thus the great variety of simple tasks involved. Other than the mere shovelling of coal many different things must be done, and some thirty different crafts are required to do them. The work of each craft is, however, relatively simple. "There is no manipulation of material comparable to what occurs in a factory where many hands work on a single piece of material to make a finished product."[1] Conse-

[1] Archbald, H., The Four Hour Day in Coal, New York, 1922.

quently there is very little of that interdependence between divisions of labor that characterizes a factory where each person's output is immediately dependent upon the output of those who handle the product before him. To the degree to which modern engineering practice is applied to coal mining the organization of the better mines is more and more coming to resemble that of a factory.

The lack of interdependence in mining operations does not mean that the workers have no common interests. On the contrary the different classes of mine labor have been taught by past experience that their welfare is mutually dependent and that any attempts by any single craft to secure any advantages for itself, if not supported by all of the other crafts, will in all probability prove futile. The highly competitive character of the industry has, moreover, convinced the mine employees that this is true not only in local adjustments but also in any adjustments that might be national in scope.

Consequently, with few exceptions, no closer relationship exists in any industry. All mine labor belongs to the same industrial union. A demand for the adjustment of grievances on the part of a given craft will bring all the other crafts in a mine to its aid. And in times of supreme emergency the entire 500,000 members of the organization, spread over some twenty-nine States, can be depended on to act in unison in securing what they feel are their just rights; for the interests and welfare of all the miners of the country are highly interdependent.

This interdependence has led to a system of collective bargaining in the coal industry, which has functioned with occasional interruption since 1885. This system will be discussed in the following chapters.

CHAPTER II

AGENCIES FOR ADJUSTING WAGE RATES

A peculiar feature of the system of adjusting wage rates in the bituminous-coal industry is a regular conference of the representatives of the employers and employees of four centrally situated coal States for the determination of basic wage rates for the various crafts in the industry. To these basic rates all rates within the area are adjusted. Changes in these basic rates serve also to determine changes in the wage rates in all other organized coal fields of the country. The agencies through which these wages are adjusted consist of the United Mine Workers of America and various organizations of the coal operators.

I. THE UNITED MINE WORKERS OF AMERICA

Approximately 663,000 men are employed in the bituminous-coal industry. Of these, about 500,000 are members of the United Mine Workers of America.[1] "All workmen regardless of creed, color, nationality, or degree of skill, employed in and around coal mines are eligible to membership" in

[1] In October, 1921, the total membership of the United Mine Workers in good standing was 515,243. This number included both bituminous and anthracite workers.—*United Mine Workers Convention, Proceedings, vol. 1, p. 205, 1921.*

this organization and its purpose is "to increase the wages and to improve the conditions of employment" of its members.[1]

The United Mine Workers of America represents the organized labor of the coal industry. It functions through its international officers [2] and its executive committee. For purposes of local administration it has created subsidiary jurisdictions known as locals, districts, and subdistricts. It is through these latter that the organization comes for the most part into direct contact with the mine operators.

The International Union.—The activities of the United Mine Workers of America as an International Union are various. The union is managed by an international president and executive board, in whom alone is vested the power to appoint international organizers and grant charters. Through its officers, organizers, and charters it creates local and intermediate subordinate organizations. By its charters and constitutional provisions it determines membership, membership conditions, and the character and duties of the locals and their officers. The president, always subject to the approval of the international executive board, controls and to a degree administers the funds of the organization, has power to appoint organizers, and to suspend or remove international officers for insubordination. Through his power to revoke charters and to give

[1] Suffern, A. E., Industrial Relations in the Coal Industry: Investigations in Industry and Labor. Institute of Economics, Washington, D. C. (In preparation.)

[2] The organization became international in 1905 by taking into its jurisdiction the organized coal workers of Canada.

financial assistance, he to a very large degree also determines the conduct of affairs of the various district and local organizations.

Local Unions.—The locals of the United Mine Workers of America are made up of the men employed at one or more mines. Their membership may vary in number from ten to several hundred. In 1921 the organization had 2,357 local unions in good standing.[1] These locals, as one writer has said, may be looked upon as the organic cells which make up the larger body. The international union is not, however, a federation of locals. It, alone, creates its locals through the issue of charters. Its organizers go among the unorganized coal workers of the country, convince them of the advantages of organization, get them to apply for a charter, organize them, and teach them to run their local union. Although the locals have a considerable amount of autonomy, electing their own officers and governing their own membership and finances, the international organization, nevertheless, through the influence of its officers and organizers and its power to revoke charters and withdraw financial assistance in times of trouble may exercise an effective control over them. In the last analysis, the locals are the practical working tool of the international in matters of local significance. They see to it that the union rules are enforced; they grant membership cards; and with the consent of the district executive board they may call and

[1] United Mine Workers Convention, Proceedings, vol. 2, p. 954· 1921. Cf. also, Suffern, A. E., ibid.

conduct strikes. They are, also, the source of the income of the international.

It should not be inferred that the large potential control exercised over the locals by the international in any way makes the locals voiceless in the conduct of the international's affairs. Through their elected representatives to the national convention, which is the supreme legislative body, they help to formulate the policies and rules which guide the organization as a whole. Moreover, through the direct nomination and election of officers, the use of the recall, and the exercise of a referendum on important policies and measures, they become the ultimate authority in the organization.

District Unions.—Subordinate to the International Union and superior to the local unions are the district unions. Their territorial limits may embrace parts of a State, an entire State, or several States. There are twenty-seven such district unions in the United Mine Workers of America, each having its own constitution, officials, and conventions. Each district union, moreover, has its own representative on the executive board of the International Union. District officers are responsible to the national organization and concern themselves primarily with making and administering trade agreements with the employers of their districts. These officers usually represent the organized miner in his negotiations with the mine operator, and they sign all final wage agreements between employer and employees except the interstate joint agreement, this last being signed by the union's

international scale committee and the international officers. The district union is the unit of collective bargaining in the coal industry.

Subdistrict Unions.—Some districts cover too great a territory to be efficiently managed by a central body. The number of men in the district may be too large for effective administration and control; or, more important still, the variation of physical conditions within the district may be so great that it is not within the ability of any small group to cope with all the problems peculiar to the different localities. In such cases the districts may subdivide their own territory as they see fit and create what are known as subdistricts.

Thus District No. 6, which comprises the State of Ohio, has fifteen distinct and separate coal fields, each of which has its own more or less peculiar conditions.[1] For purposes of administration and the making of wage contracts this district is divided into six subdistricts, each subdistrict having its own administrative board. District No. 12, whose boundaries are those of the State of Illinois, is divided into eleven subdistricts. Other districts are similarly divided. Subdistricts are chartered by the international union and their governing boards are made up of delegates from locals within their jurisdictions. They are directly responsible to the executive board of the district of which they form a part. Ultimately, however,

[1] Moore, John, District No. 6, United Mine Workers of America, Testimony before U. S. Bituminous Coal Commission, Washington, 1920.

they are subject to the rulings of the international executive board.

The mine laborer is represented in bargaining with his employer by an organization that is capable of national and concerted action. He is part of an army made up of all the crafts in the industry united under a common leadership—an army that has grown in thirty years from 33,000 to 500,000 men. This army is centrally controlled, so that in an emergency the entire force can be marshalled and led into action; yet it is sufficiently decentralized through a system of district and subdistrict organizations to make possible the effective handling of local problems by those most immediately affected. In short, we have a union highly integrated and centralized in an industry widely dispersed and decentralized. It attempts to govern through its subordinate divisions the affairs of men working under similar conditions who have common interests to protect wherever common rules as to wages and conditions of employment can be enforced.[1]

II. THE EMPLOYER ORGANIZATIONS

In contrast to the close-knit, well-defined, and more or less centrally controlled organization of the mine laborers is the organization of the bituminous operators. Their only national organization is the National Coal Association. This body, however, does not concern itself with labor matters.

[1] Hoxie, R. F., Trade Unionism in the United States, p. 115, New York, 1922.

Negotiating with labor is the function of local operators' associations, which usually act independently of one another and have no common agency for formulating a labor policy.

The organizations of the coal-mine operators show a marked contrast to that of the mine laborers. The only national organization that represents them is the National Coal Association; and even this body comprises only the owners of 60 per cent of the commercial bituminous output of the country.[1] Its primary purpose is the protection of trade interests; and the labor problem is excluded from its program by mutual consent.[2] Its objects, as set forth in its certificate of incorporation, are to compile data bearing on the conservation, production, transportation, marketing, and uses of coal; to secure the enforcement of laws relating to the coal industry; to develop and install uniform cost-keeping methods, and to secure adequate transportation facilities for the industry—in other words, to encourage and foster "the general welfare of the coal-mining industry of the United States."[3] It is to a large extent a federation of associations, its membership being made up primarily of "coal operators' associations not organized for profit," although membership is also "open to operators in any field in which there is no organization

[1] Coal Age, vol. 22, no. 15, p. 601, 1922.

[2] Anderson, G. J., Labor Policy in the Bituminous-Coal Industry, p. 14, New York, 1922.

[3] Amended Charter and By-Laws: National Coal Association, p. 3, Washington, 1921.

member."[1] It is through these operators' associations in the various coal fields that all labor matters are handled and it is with them that the United Mine Workers negotiate in making a labor contract.

About forty local operators' associations are affiliated with the National Coal Association. Although some of these associations are of the nature of trade associations, the primary purpose of many of them is to negotiate with their laborers and, as expressed in the constitution of one of the leading organizations, to protect their members in the enjoyment and exercise of their rights and privileges as employers of labor and to promote "in every proper and legal manner, the interests of the coal industry."[2] They are all free to formulate their own labor policies and are usually governed by executive boards which represent their respective organizations in making wage agreements with the union. Some of them include in their membership the operators in given fields, some of which coincide with the subdivisions of the United Mine Workers. In Indiana a single unit, the Indiana Bituminous Coal Operators' Association, "reaches to and includes all of the bituminous coal-mining interests of the State"[3] and parallels District No. 11 of the United Mine Workers of America. The interests of the Illinois operators are cared for by three district and independent associations, each of which deals with

[1] Ibid., p. 4.

[2] Constitution and By-Laws: Indiana Bituminous Coal Operators' Association, Terre Haute, p. 4, 1909.

[3] Ibid.

the laborers in its own territory. In the coal fields of the Southwest, the Southwestern Interstate Coal Operators' Association includes most of the operators of Missouri, Kansas, Arkansas, and Oklahoma.

Many of these associations employ labor commissioners. Since the underlying purpose of most of these associations is the handling of labor matters and since uniform practice in dealing with the union in each jurisdiction is desirable, it has been found expedient by many of them to center in the hands of a single individual those duties which have to do with enforcement of labor contracts. This officer of the association is usually called a commissioner; his duties are to assist in making the contracts with the union, to keep records of such contracts and of all decisions that are made as to their interpretation, and to investigate and, if possible, adjust any complaints as to violations.[1] It is apparent that the efficient execution of these duties requires an intimate knowledge of labor policy and labor psychology; and this fact the operators' associations have long recognized. They have therefore very often selected former union officials as their labor commissioners and at present are even employing two former international presidents in that capacity.

The independent nature of the operators' associations and the lack of any common national agency for formulating labor policy should be especially emphasized. There is no single unit which can

[1] Ibid., p. 6.

represent the operators in bargaining with the close-knit organization of the mine employees. Recent events have shown that no unified machinery exists for dealing in a comprehensive way with a situation which is controlled by a national union.

This state of affairs has no doubt proved of great advantage to the miners' union. It would seem off hand that the relative advantage held by the union would lead to unjustifiable demands and frequent warfare. The surprising fact remains, however, that the bituminous-coal industry, despite the strikes of 1919 and 1922, has been peculiarly free from *national* labor difficulties. Indeed, investigation shows that at no time during the twenty-two years from 1897 to 1919 was there any national tie-up in the bituminous industry comparable to the general strike of the latter year. The explanation of the maintenance of peace during these many years will be found for the most part in the machinery for negotiating labor contracts which functioned during the period; that is, in the Joint Conference of the Central Competitive Field.

CHAPTER III

THE WAGE-MAKING MACHINERY

The system of wage negotiation in the coal industry is not exactly national in its scope. The industry has nothing, for example, which is similar to the system of national wage agreements which existed until recently in the railroad industry. The absence of any centralized organization of mine operators for handling labor matters has already been noticed. Without such an organization national wage agreements can not be successfully negotiated. Moreover, it is doubtful whether the different operators' associations would look with favor upon such procedure. Then, too, such agreements are made difficult by the attitude of certain groups of operators who refuse to negotiate with the United Mine Workers and whose absence would make impossible the successful functioning of a national contract.

The operators of southern West Virginia and the Pittsburgh Coal Producers' Association are cases in point. Many West Virginia operators refuse absolutely to recognize the United Mine Workers of America and will negotiate only with individual employees. The Pittsburgh Coal Producers' Association, on the other hand, has for many years had a wage contract with the United Mine Workers.

Yet they refused to take part in the usual conference for negotiating a wage agreement in the spring of 1922; and they did not participate in the Cleveland conference of September, 1922, at which the strike of that year was terminated.

Many cases of opposition to a national agreement could be cited. Indeed the very associations which for many years have had agreements with the miners' union have refused to be parties to such a procedure. Such, for example, was the case when Secretary Wilson of the U. S. Department of Labor, in an effort to bring to a close the strike of 1919, suggested that the operators from the union coal fields enter a joint conference with the United Mine Workers and negotiate a basic wage rate for all the union districts. It appears that the miners' officials and the representatives of several of the operators' associations were agreeable to such a plan. Yet the operators from the four central coal States (Illinois, Indiana, Ohio and western Pennsylvania) refused. Again in November, 1922, while attempting to develop some new method for negotiating wage contracts, certain operators suggested the establishment of a national wage conference with a basic national wage rate. Here, too, the opposition of certain groups of operators prevented the adoption of such a plan; and a final attempt to adopt it was ruled out of order at the Chicago conference of miners and operators in January, 1923.

If one judges the attitude of the officials of the United Mine Workers correctly it is doubtful whether even they are now sympathetic to a system

of national wage agreements, for they seem to feel that their relatively weak position and lack of control in certain districts would make the successful maintenance of a national agreement both difficult and problematical.

I. THE AREA OF NEGOTIATION

For purposes of wage-rate negotiation, the coal fields of the country may be divided into three distinct groups: (1) Those of the Central Competitive Field, which comprises the States of Illinois, Indiana, and Ohio and most of the western part of Pennsylvania; (2) the nonunion fields, many of which border on the Central Competitive Field; and (3) the outlying districts, which are made up of the organized bituminous areas outside of the Central Competitive Field and are scattered here and there throughout the country.

The United Mine Workers have sought to make collective agreements in areas where they have virtually complete control of the labor forces. This is particularly true of the so-called Central Competitive Field, which is made up of three central coal States, Illinois, Indiana, Ohio, and of western Pennsylvania,[1] corresponding to Districts 12, 11, 6 and 5 of The United Mine Workers.

Central Competitive Field.—The four States which make up the Central Competitive Field are among

[1] The western Pennsylvania district of the United Mine Workers (District No. 5) consists of Allegheny, Armstrong, Beaver, Butler, Greene, Lawrence, Mercer, and Washington counties.

the oldest coal States of the country. In 1898 they had a combined output of 53,000,000 tons of coal, or about 32.5 per cent of the bituminous production of the country. The production of this territory has increased tremendously and in 1920 reached a total of 212,000,000 tons. This increase, however, was proportionately but little greater than that attained in other fields, for in spite of the growth in the output of the Central Field its production in 1921 was but 37.8 per cent of the total output of the country.[1] Originally, too, this territory included the bulk of the organized coal workers of the country, and even now it includes almost half of the union mine labor of the country. Its membership in 1921 was over 200,000.

The wage rates paid in the Central Competitive Field influence the rates paid in all other coal fields in the United States. It has long been the custom of the United Mine Workers and the coal operators of the country to use these rates as a basis for determining mining rates in the unionized fields of the country. That is to say, the representatives of the operators' and miners' organizations in the Central Competitive Field meet regularly with the national officers of the United Mine Workers to determine the basic wage rates for a given point in each of the four districts which make up the field. Using these basic rates as a point of departure, the officers of the districts included in the Central Competitive Field

[1] Production of Central Competitive Field and Its Relation to Total Bituminous Production of the Country: U. S. Geol. Survey Weekly Report 259, July 1, 1922.

make separate wage agreements with the individual operators' associations of their respective districts. A few operators in this field do not belong to the dominant association and with these the district union will make individual contracts. These district agreements provide for variations from the basic rates to meet the different conditions which prevail at the different mining centers. The effects of the basic wage rates are felt also in union districts which are outside of the Central Competitive Field and are said to determine even many of the rates paid in the nonunion fields.[1]

Nonunion Fields.—The nonunion coal fields center primarily in West Virginia, eastern Kentucky, Alabama, Tennessee, and the Somerset and Connellsville sections of Pennsylvania. They normally produce approximately 40 per cent of the country's coal, although during the strike of 1922 they proved that they could supply over 60 per cent of the average weekly consumption of the country.[2]

Outlying Districts.—Outside of the Central Competitive Field are twelve other union districts[3]

[1] Ogle, A. M., Testimony, Investigation of Wages and Working Conditions in the Coal-mining Industry: Hearings on H. R. 11022 before Committee on Labor, House of Representatives, 67th Cong., 2d sess., p. 174, 1922.

[2] Monthly Labor Review, vol. 15, no. 5, p. 14, Nov., 1922.

[3] The Central Competitive Field is composed of four districts of the United Mine Workers of America: Districts Nos. 5, 6, 11 and 12. Nos. 1, 7, and 9, are anthracite districts; No. 8 is the Indiana Block Coal district; No. 18 is in western Canada; and No. 26 in Nova Scotia. Districts No. 15 in Colorado, No. 19 in Tennessee, No. 20 in Alabama, No. 29 in southern West Virginia, and No. 30 in eastern Kentucky have no agreement with the operators.

which comprise the coal-producing areas of central Pennsylvania, Washington, Iowa, Maryland, northern West Virginia, Wyoming, western Kentucky, Michigan, Montana,[1] Missouri, Kansas, and Oklahoma.[2] The latter three States together with Texas and Arkansas constitute the Southwest Interstate Field, and the Southwest Interstate Conference acts for these five States very much as the Interstate Joint Conference acts for the States of the Central Competitive Field. The total output of the Southwest Interstate Field in 1920 was about 18,500,000 tons, and the production of the other outlying union districts ranged from 1,500,000 tons in Michigan to approximately 37,000,000 tons in central Pennsylvania. The total output of these twelve districts combined was in that year about 120,000,000 tons, about 21 per cent of the total output of the country. Although the wage rates in these districts are usually the result of local historical conditions and therefore naturally vary from jurisdiction to jurisdiction, they are nevertheless affected by the basic rates fixed in the Central Competitive Field.

The United Mine Workers aim to make whatever conditions they can secure more or less uniform and universal for their membership. With this in view it has been their policy, wherever possible, to make any changes in wage rates nation wide. Since the Central Competitive Field is the largest single producing unit in the country it is used as the central point of

[1] District No. 27 consists of Montana and North Dakota.

[2] District No. 21 consists of Oklahoma, Texas, and Arkansas.

attack. Rates for this unit are fixed by an Interstate Joint Conference, and advantages secured here are used as a basis for securing advantages elsewhere. In this way the union maintains as far as is possible a definite relationship between the basic wage rates of the Central Competitive Field and the outlying districts. Wherever practicable, therefore, it has imposed the principle that changes made in the basic rates as made by the Interstate Joint Conference should be reflected in the wage rate of the outlying districts. This it has succeeded in accomplishing in most districts, and today it is an accepted principle that every change in the basic rates as fixed for the Central Competitive Field shall determine similar changes in the wage rates in effect in the outlying districts. Any increase or decrease in the basic rates, then, is reflected in the rates of the other districts.

What we have here is in effect a series of independent yet interdependent local wage agreements; independent because they are entered into by individual operators' associations and are based primarily on local conditions, and interdependent because they are all to a degree related to the basic wage rate as fixed in the Central Competitive Field. And this, in last analysis, means not only that union wages in all districts of the country go up and down together but also that the extent of change in these rates is determined by the Joint Conference of the operators and miners of the Central Competitive Field and is approved by the rank and file of the International Union.

II. THE EVOLUTION OF THE INTERSTATE JOINT CONFERENCE

A clear understanding of the nature and significance of the Interstate Joint Conference will require, first, the consideration of the condition of the coal industry prior to its establishment. In the years preceding 1898 the coal industry was in a most chaotic condition. Its productive capacity was much greater than ordinary consumption warranted, and this led to recurrent periods of overproduction. Periods of prosperity mean industrial expansion, and industrial expansion means large demands for coal. And this means the opening of many new mines.

Mining is in many respects a more precarious business than manufacturing. Periods of factory shutdown are expensive, for during such periods overhead charges continue to accumulate and depreciation goes on as usual. Even so, the situation is relatively simple compared to mining. Once a mine has been shut down it is exposed to the possibility of caving, floods, and other forms of deterioration, perhaps involving a complete loss of investment. Capital once invested in a coal mine can not be withdrawn; a mine, unlike a factory, can not be turned to some other use. It can be imagined, therefore, that even though the effect of prosperity on mining may be very similar to its effects on industry in general, the difficulties of depression are greater and more acute.

During years of depression, instead of restricting

production to meet the demand, it was for a long time the practice in the coal industry to extend production to a point where the product brought little or no profit and often a loss. Such a procedure was often the operators' only recourse, for he could for a time much more easily cope with small losses through sales at a low price than withstand the greater loss which might follow the closing down of his properties.[1]

During the last quarter of the nineteenth century conditions became more and more serious, particularly because of the development of new coal fields and the expansion of railroad facilities. Markets which had previously been sectional and which had been supplied by adjacent mining districts were now (as a result of expanded railroad facilities) cut into by producers from distant coal fields; and this meant competition even more severe than that in the past and an inevitable increase in overproduction.[2]

The competitive difficulties of the operators were important causes of industrial strife. In order to keep going in times of depression the operators were prone to make labor bear the sacrifice wherever it was possible and to cut wages to a point where labor was hardly able to subsist. This in itself would have been sufficient to bring about revolt by the mine workers. But there were still other

[1] For a more comprehensive explanation of the effect of shutdowns on mining costs, see pp. 284–287.

[2] Suffern, A. E., Industrial Relations in the Coal Industry: Investigations in Industry and Labor, Institute of Economics, Washington, D. C. (In preparation.)

factors which made conditions favorable to industrial warfare: the opportunity for work was very limited, for the highly seasonal nature of the industry had made it necessary for the operators to maintain a surplus of men to meet the peak demands. Then again the mining industry of the last century was centered in isolated communities, and moving to a new place was difficult for the miner. Mine labor had therefore become immobile and the miners were kept in their old haunts during periods of depression.

Sporadic attempts had been made prior to 1898 to improve the increasingly unfavorable conditions of labor in the industry. The last half of the nineteenth century had seen in the American Miners' Association, the Miners' and Laborers' Benevolent Association, and the Miners' National Association, three stillborn attempts at organizing the mine laborers of the coal fields. By 1885 the miners of the country has begun to realize that any effective solution of their problem lay in an organization more or less national in scope, which could negotiate with all of the operators in the competitive group. This implied a joint conference of miners and operators of the competing States to "frame a scale of wages, agree on uniform working conditions, adjust 'market and mining prices in such a way as to avoid strikes and lockouts, and give to each party an increased profit from the sale of coal.'" [1] With this end in view the National Federation of

[1] Suffern, A. E., Conciliation and Arbitration in the Coal Industry of America, p. 30, New York, 1915.

Miners and Mine Laborers, which was founded in September, 1885, issued a call for a interstate joint convention of miners and operators.

The First Interstate Joint Conference.—Although this call did not bear fruit for a year, it appears that many of the operators of the country saw in it a way out of the difficulties in which they were enmeshed. "Both the operators and the miners felt that if a cooperative arrangement could be worked out in the particular district then so closely competitive, that if collective bargaining for the entire country could be had, and an organization among the miners built up that would be responsible and that would respect a contract, it would be most desirable for the industry." [1] Accordingly in 1886 the operators and miners from Ohio, Indiana, Illinois, and Pennsylvania met at Columbus, Ohio, and organized the first Interstate Joint Conference. This conference adopted wage scales for the four States represented and established a national board of arbitration to settle disputes that might arise between different States, as well as minor boards to care for State matters.[2]

Conferences of 1887–88.—Conferences were again held in 1887 and 1888, but a smaller number of States participated and in 1889 the conferences were abandoned. Although these Joint Confer-

[1] Ogle, A. M., Testimony, Investigation of Wages and Working Conditions in the Coal-Mining Industry: Hearings on H. R. 11022 before Committee on Labor, House of Representatives, 67th Cong., 2d sess., p. 162, 1922.

[2] Suffern, A. E., ibid., p. 31, 1915.

ences functioned for only three years their significance can not be overemphasized. They proved that it was possible for miners and operators from competing fields to get together on certain fundamental issues and formulate agreements as to wages and conditions. They further proved that there could be gained for the period of an agreement the continuance of uniform and undisturbed labor conditions. They were the precursors of the interstate joint agreements which now exist in the coal industry of the United States.

The Joint Conference of 1898.—With the break in the Joint Conference in 1889 came a reversion to chaos in the coal industry. As described by John Lewis, now president of the United Mine Workers: "The conditions existing in . . . bituminous mining were indescribably vicious. Because of rapid overexpansion in capital commitments and the resultant competition, labor received far less than a subsistence wage and, working under deplorable conditions, was bitterly resentful and discontented. Investment capital was unwilling to enter the industry, and as a result bituminous coal mining became largely a gambling, speculative enterprise." [1] In 1891, the National Federation of Miners, which had meanwhile united with a division of the Knights of Labor under the name of the United Mine Workers of America, attempted once

[1] Lewis, J. L., Testimony, Investigation of Wages and Working Conditions in the Coal-mining Industry: Hearings on H. R. 11022 before Committee on Labor, House of Representatives, 67th Cong., 2d sess., p. 216, 1922.

more to bring back to life the Interstate Joint Conference, but without avail.

Later attempts at negotiation also failed and the climax came in 1897 when the United Mine Workers called a strike. The organization then had a membership of not more than 10,000; and evidence of "the wretched condition of labor at the time is nowhere more strikingly shown than in the fact that some 150,000 men, practically the entire Central Competitive Field, responded to the call." [1] From this strike there resulted the interstate joint conference agreement of 1898 which, with partial interruption, has continued to the present time.

After 1898 Interstate Conferences were held annually until 1906. In that year a disagreement made impossible the negotiation of a new four State contract. This break resulted in the miners' representatives going home without any basic wage rates for the field, and for the next two years the various districts operated under local and more or less unrelated agreements.

An Interstate Joint Conference in 1908, at which Illinois was not represented, resulted in a three State agreement which lasted until 1910. In that year the Joint Conference was once more stranded on the rocks and individual State agreements were made in Ohio, Indiana, and western Pennsylvania. At the following conference, in 1912, however, all four States were represented, and the four State agreements were regularly made in Joint Con-

[1] Idem.

ference [1] until August, 1917, when the U. S. Fuel Administration took over control of the industry.

With the signing of the armistice difficulties arose which resulted in the strike of 1919. This strike culminated in the signing of district agreements, the terms of which were fixed by the Bituminous Coal Commission. These agreements, like the old interstate joint agreements, provided for a meeting of miners and operators in advance of their expiration for the purpose of naming a time and place for the next Interstate Joint Conference.[2]

An attempt to hold such a wage conference in 1922 was blocked by certain operators from western Pennsylvania, and the strike of 1922 followed.[3] This strike was terminated by individual State agreements which were in effect until April 1, 1923. For the year ending April 1, 1924, the Interstate Joint Conference has been again revived, an interstate agreement for the Central Competitive Field having been made in January, 1923.[4]

III. THE INTERSTATE JOINT CONFERENCE AT WORK

The Interstate Joint Conference is the parliament of the coal industry. Here negotiations are held

[1] Moore, John, Testimony, Investigation of Wages and Working Conditions in the Coal-mining Industry: Hearings on H. R. 11022 before Committee on Labor, House of Representatives, 67th Cong., 2d sess., p. 232, 1922.

[2] Penna, P. H., ibid., p. 354, 1922.

[3] Lewis, John L., ibid., p. 230, 1922.

[4] Western Pennsylvania was not represented at this conference or at that of February, 1924.

and here basic legislation for the industry is enacted. It is the parliament at which the leaders of both sides of the industry meet face to face and discuss their problems, as one writer has said, "with plain speaking, without politics, religion, or demagogy." There is, to be sure, some "old-time hypocrisy on the part of the employers that their great interest in life is to shower blessing on their [labourers'] heads," and some "ranting demagogy on the part of the workmen about the dignity of labor and the iniquity of capital." Each side, nevertheless, frankly admits that its ruling motive is self-interest; "that it is trying to get as much as it can and to give as little as it must; and that the only sanction which compels them to get together and to stay together until they reach a unanimous vote is the positive knowledge that otherwise the mines will shut down and neither the miner will earn wages nor the operator reap profits." [1]

Originally, and up to 1912, the Joint Conference was a large body. In 1906 it had a membership of 990 persons, of whom 633 were the elected representatives of the rank and file of the United Mine Workers in the four central coal States and 357 were operators who owned mines in the Central Competitive Field.[2] Under the rules of the conference, the operators from each of the four States have four votes and the miners from each State

[1] Commons, J. R., Trade Unionism and Labor Problems, p. 2, 1905.

[2] Suffern, A. E., Conciliation and Arbitration in the Coal Industry of America, p. 146, New York, 1915.

have four votes, irrespective of the number of representatives each State may have present. Moreover, the rules require a unanimous vote on all main and principal questions, that is, "all questions affecting wage scales and agreements." Unanimity is attained by a system of unit voting which results in each State casting its vote as a unit, the vote of each unit being determined by the majority of individuals that compose it. But all have to abide by the general decision. Such a procedure protects the interests of both the miners and operators, for no combination can be made in the convention between the miners and operators of a single State which would impose on the miners and operators of another State a wage scale that the latter might be unwilling to accept.

Owing to the size of the Joint Conference and the nature of its work the actual negotiations are carried on by committee. Any body as large as this Joint Conference would be too cumbersome and unwieldy and would afford too much opportunity for mere talk and the bringing up of irrelevant matters. Consequently it was found necessary, after each side has had its say, to leave the actual work in the hands of a committee of sixteen miners and sixteen operators (four from each of the two sides). Indeed it has even been sometimes necessary, when agreement is not in sight, to submit the demands of each side to a smaller and less formal subscale committee for reconciliation. It is in these committees that the opposing demands are considered, concessions made, certain matters laid aside for future negotia-

tion, and agreements finally reached. And it is the agreement that is reached here that is approved by the Joint Conference. There is no arrangement for the arbitration of a question of dispute in the Interstate Joint Conference, should the conference fail to reach an agreement. In other words, responsibility for making a decision is placed squarely upon the parties to the dispute.

By 1912 the feeling had grown among both the operators and the miners that a large convention was not necessary to the effective conduct of a Joint Conference. For, in last analysis, the convention really did little else than ratify the agreements reached in committee. The same ends could be secured, it was believed, by having a smaller body meet and submit its decision to a referendum vote of operators and miners for ratification. This method was adopted in 1912, and since that year the Interstate Joint Conference has in fact been a scale committee made up of eight miners and eight operators from each of the four States together with the international officers of the United Mine Workers. This smaller body can of course be much more effectively managed and at the same time it eliminates a considerable waste of time and expense which was necessarily involved in the old conference.

The operators who make up this scale committee are the appointees of their respective associations, and the miners are the elected representatives of the rank and file of the districts included in the Central Competitive Field. The latter come to the conference with definite instructions as to what

wages and conditions should be demanded and, whenever there is any great difference between their demands and what is actually secured through negotiation, the agreement reached may be made subject to the approval of the general membership either through a referendum or a convention. Otherwise the approval of the international policy committee of the United Mine Workers, composed of representatives from all districts under the jurisdiction of the international organization, makes it the basic law of the unionized coal fields of the country.

The issues handled by the Joint Conference are few in number and have been made relatively simple in their nature. The complexity of mining conditions, the variations in thickness of seams, the differences in qualities of coal, the many types of labor engaged in the industry and the lack of centralization on the side of the operators even in the restricted area of the Central Competitive Field would lead one to believe that the issues dealt with by the Joint Conference are both numerous and complicated; but, as a matter of fact, such is not the case. To be sure, there is no limit to either the amount of wrangling that may go on at one of those conferences nor to the number and nature of the demands presented by either side. The miners usually want higher wages and better conditions; the operators usually want lower wages and more freedom to control their employees. Each side, indeed, comes to the conference "with demands more extreme than it expects to see granted." Then follows

much talk. Next come concessions by both sides. Some matters are left undecided or referred to the individual districts for settlement. And finally comes unanimous agreement. "Nobody is satisfied, yet everybody is satisfied." [1] It is the best that can be done.

The function of the Joint Conference is to fix certain rates and conditions for a basing point in each of the four central States. It does not legislate for miners and operators outside of these central points. Wages and conditions for the latter are based upon local conditions and are affected by the interstate joint agreement only so far as changes for the basing points are made at any conference. In other words changes for the basing points in the interstate joint agreement are used (as has already been said) as a basis for changes in the agreements between the operators and miners in the individual districts that comprise the Central Competitive Field. The result, then, is that the function of the Interstate Conference resolves itself into a determination of what rates and conditions shall prevail at the four basing points for the different classes of labor.

The task of adjusting wage rates, though originally difficult, has become relatively simple. At first glance, it would appear that here are no simple problems. The very multiplicity of laborers to be taken care of even at the basing points would in itself present a most complicated problem. And a complicated problem indeed was here involved

[1] Commons, J. R., ibid., p. 6.

when the rates for pick mining, machine mining, and the various classes of inside labor [1] were originally determined in 1898. Since then, however, the situation has become relatively simple, for it has been the policy of the Interstate Conference to do no more than make uniform changes which are applied to the existing rates at the basing points. That is to say, flat increases or decreases of a specified number of cents are usually made in existing pick and machine mining rates, the same increase or decrease applying to all four basing points. These changes, it should be said, are applied only to the rates for mining under standard conditions; that is, in rooms and under conditions which are considered normal at each basing point. It often happens, however, that the miner must work under conditions which are far from normal and for this work he receives special rates, called dead-work and yardage rates.

Dead-work and yardage rates are not fixed by the Interstate Conference even for the basing points. They are fixed within the various districts of the Central Field and are entirely independent of each other. They are the products of local historical conditions. Since they do, however, affect the earnings of the miner, the conference has taken on itself the determination as to whether the individual local dead-work and yardage rates at each basing

[1] It will be noted that no mention is made of the rates for outside labor. Wage rates for outside labor were not subject to negotiation at the Joint Conferences prior to 1917. They are fully discussed on pp. 144–148.

point should be increased, decreased, or kept constant. Such changes as are made in these rates are percentage changes, and the same percentage of increase or decrease is applied uniformly at all four basing points.

The rates for inside workers have been treated very much like the standard pick rates. That is, a standard rate for each class of inside labor has been adopted and uniformly fixed for all the basing points. Changes in these rates, however, are made in the same way that changes in dead-work rates are made; namely, on a percentage basis, the same per cent of change applying to all classes and all points. Thus an increase of ten per cent in the day rate for inside men has meant an addition of ten per cent to the day rate for all classes of inside workers, irrespective of the type of work each class may do or the rate it may receive; the low-priced trapper boy receives the same percentage increase as the more highly skilled and highly paid motorman.

IV. DISTRICT AND SUBDISTRICT CONFERENCES

Special rates and all other matters peculiar to an individual district are referred back to be handled in a district conference. The rates at all other mining centers in the Central Field are independently fixed and are related to the rates agreed on at the Joint Conference only by virtue of the fact that changes in the latter are used to determine the extent of changes in rates throughout the district. In order that the district rates may be kept in line with the rates set for the basing points, it is neces-

sary that adjustments be made in the rates which prevail in each locality within every district. These adjustments in the rate structure are made in district conferences, where the same policy with respect to general affairs within the State is followed as in the Interstate Conference; namely, all matters peculiar to an individual locality are usually referred to subdistrict conferences or conventions.

A district conference resembles in several respects the Interstate Joint Conference. It may (as in District No. 12, which comprises all the locals in the State of Illinois) be modelled after the old Interstate Conference. This district has a joint conference of operators and elected representatives of all union locals, which meets shortly after the Interstate Agreement is made. This body appoints its scale committee, which adjusts the scales for the various subdistricts and reports back its findings for approval.

On the other hand, the wage scales for the district may (as in District No. 11, Indiana Bituminous field) be adjusted by a scale committee made up, as in the Interstate Conference of later years, of a small number of representatives from each side. Or, again, conditions within a district may be so varied as to make impracticable the adjustment of rates by any central body.

In Ohio (District No. 6) for example, there are six different subdistricts with approximately fourteen different thicknesses of coal and fourteen different sets of working conditions. In this State the wage scales for the various subdistricts are

adjusted by subdistrict conferences. Here one occasionally finds subdistrict conventions doing for their local area in a conference of operators and miners what the district conference in other States does for the district. More frequently, however, the subdistrict scale committee (a smaller body) negotiates these adjustments. Sometimes a mine within a subdistrict may have conditions and physical deficiencies different from the rest of the mines in the same subdistrict, and such mines may even be governed by local agreements between the individual operator and the local which has jurisdiction.

The scope of the agreements made at these district and subdistrict conferences is greater than is that of the interstate joint agreement. Flat additions and subtractions equal to those fixed for the basing point within the district are made for pick-mining rates, and percentage changes are made in day-labor rates and dead-work rates. In addition to these, rates must be agreed on for machine running and loading. The interstate joint agreement makes provision for flat changes in machine-mining rates, but this rate is a total which includes the amount to be paid to both the machine runner and the loader. The manner of dividing these flat changes so that both the machine runner and the loader may get an equitable share is determined by the district or subdistrict wage-making bodies. It is in these conferences, too, that wage rates are made for outside workers and that *internal grievances* are settled.

Internal grievances are handled only by district or subdistrict wage-making bodies. Such grievances usually arise from differences as to thick and thin seams, yardage rates, and extra compensation for deficiencies (thick slate, clay veins, and other impurities running through the seams of coal; water; bad roofing, etc.); questions of fines, coal preparation, blacksmithing, absenteeism, settlement of disputes, check off, powder, house coal, and other questions for which no provision is usually made in the interstate joint agreement.

Indeed, these conferences are the final instruments for negotiating wage rates. They serve also as agents for putting into execution both the orders of the Interstate Joint Conference, which concern themselves primarily with wage-rate changes, and the orders of the constituent locals and associations, which have to do with all other matters.

PART II

THE THEORY OF WAGES RATES AND ITS APPLICATION IN RATE MAKING

CHAPTER IV

COMPETITIVE EQUALITY AS THE BASIS OF WAGE RATES

The preceding discussion has brought forth several interesting features of the bituminous-coal industry. A variety of crafts (some thirty in number) is employed in the coal mines of the country. These men do different kinds of work and their individual tasks are such as to keep them spread all over the mine, both above and below ground. The nature of their work makes it virtually impossible for them to come into contact with each other during the course of the day. Nevertheless they form a very closely knit unit. Their consciousness of the fact that their problems are common to all is shown in the existence of the United Mine Workers of America. This institution represents the organized labor of the coal industry.

Among the mine owners of the country, on the other hand, there is no well-defined consciousness of kind. This fact becomes particularly evident when it comes to negotiating with labor. Labor matters are handled by the local associations of operators in the various mining districts in almost complete independence of one another.

The most important mining districts in the organized areas are in what is known as the Central Competitive Field. Representatives of the operators in the Central Competitive area have with few exceptions met regularly during the last twenty-five years with the representatives of the United Mine Workers in an Interstate Joint Conference where they have negotiated the basic wage rates for the various crafts in the industry. Adjustments in these rates affect the wage rates within all of the organized districts of the country. They are used as the basis for making adjustments in the district and subdistrict conferences, where the wage rates for local areas are negotiated.

In determining the basic rates to be fixed for the various mining centers a definite principle of rate adjustment has guided the conferences of operators and miners. This principle known as "competitive equality," has ostensibly been the basic factor in determining the rates fixed for the various mining centers of the country. The present chapter will undertake to show reasons for the acceptance of the principle of competitive equality; the implications involved in such a principle; and the diversity of opinions which has arisen as to its interpretation. The other chapters in Part II will discuss the actual application of the theory of competitive equality to the adjustment of the rates for pick miners, machine miners, and company men.

I. THE ADOPTION OF THE PRINCIPLE OF COMPETITIVE EQUALITY

The success of any joint contract between employers and employees depends in large part on the number of persons who are parties to the contract. This is particularly true in the bituminous-coal industry where competition has always been abnormally keen and relentless. The ability of those operators who are not a party to a wage contract to undersell their competitors through the manipulation of the wage rate may easily render ineffective any collective bargain between operators and their employees. In periods of slack demand the independent operator may lower his wage rates and accordingly his production costs and selling price to an extent which makes it impossible for the contract-bound operator to continue work.

Consequently both the miners and the operators realized from the very start that the success of any Interstate Joint Agreement would depend on its obtaining the support of the largest possible number of operators. To gain this it was necessary to adopt certain policies that would assure all operators that their individual interests would be protected—that joining the negotiations would not upset any operator's relationship to other operators in his market and that his competitive position therein would be protected.

The principle of a protected competitive existence for all operators and miners has ostensibly been the

basis of all wage agreements in the Central Competitive Field. In fixing the basic rates for pick mining (and in fact in fixing all basic rates) this fundamental consideration has supposedly, from the very first day of the interstate movement's existence, been accepted as a basic principle for wage negotiation in the mining industry. It was adopted as such by the Joint Conference of 1902 when the fact was emphasized that: "This movement is founded and . . . is to rest, upon correct business ideas, *competitive equality,* and upon well-recognized principles of justice." [1] That is to say, rates and conditions are theoretically fixed in the Interstate Conference for all points on a competitive basis that will allow every operator to do business. Each operator must presumably be given a chance to mine coal and get it to his market in competition with all other operators.

II. WHAT COMPETITIVE EQUALITY MEANS

Competitive equality means that the rates fixed for each basing point must apparently be such that the operators at the different points who pay these rates can compete with each other. It means further that if this conception of competitive equality should be applied in a scientific manner to mining centers outside of the basing points, the rates for each district, each subdistrict, and even each individual mine would have to be so adjusted as to

[1] Fifth Annual Joint Conference Coal Miners and Operators, Illinois, Indiana, Ohio, and western Pennsylvania, p. 51. 1902. (*Italics are author's.*)

allow each operator to compete effectively with every other operator that enters his market. It means, too, that in fixing these rates every factor that makes for differences in the cost of producing coal and getting it to the market would have to be taken into consideration; and that consequently variations in the thickness of the seam from district to district or often even from mine to mine, variations in roof, impurities, water, and all other factors would have to be allowed for. It means that the variations in distance from the various mines to the market and consequently the freight rates charged for hauling coal to the market would have to be considered. And it means finally that the laborers employed in those districts where coal mining can not be efficiently carried on or in those districts that are unfavorably located as to freight rates would have to accept a wage that is based, not on the energy expended nor on what their fellow miners receive elsewhere for the same work, but on the ability of the operators to pay and also to ship coal into the market.

This principle has long been the guiding factor in determining the demands of the operators at wage conferences and was well expressed by Mr. P. H. Penna [1] when he said:

> To pay the mine worker his wages on the basis of absolute justice would be, as I see it, according to the number of units of labor necessary to produce a ton of coal. Now that would be absolute justice. The num-

[1] Penna, P. H., Transcript of Proceedings: U. S. Bituminous Coal Commission, 1920.

ber of units of labor necessary to produce a ton of coal, carrying the same price and the same wage would be justice. But it is impracticable. The only way left us, and the only alternative, is taking into consideration competitive abillty and competitive relationships. If we should follow the first plan then there are lots of little mining towns in America that would have to go out of existence. The thin-coal veins would have to be abandoned and the thick ones worked until exhausted.

This same idea was expressed in the Illinois Joint Convention in 1902 when one of the operators said:[1] "We have banded together here so that the operators in every district might exist, notwithstanding the different conditions that prevail; and so long as we work on these lines some miners will have to accept less wages than others."

The theory of competitive equality has sometimes been extended to almost absurd limits and has been made the excuse for the existence of conditions which could find no other justification. An example occurred in the Illinois Conference of 1900 when a miner proposed that an extra rate be paid for mining in wet mines. "When men must work," he said, "in water up to their knees all day long and every day in the month, it is expected they will be compensated for it; where men have perfectly dry work we are satisfied with the scale." Both the operators and miners agreed that no operator ought to permit his mines to run in that condition, that miners working under such conditions ought to have

[1] Regulation and Restriction of Output: Eleventh Special Rept. [U. S.] Commissioner of Labor, p. 395, 1904.

more wages, and that to put an extra mining rate on wet mines might force the merely careless operator to improve his mines. But beyond this nothing was done. For, as was agreed, it was questionable whether an extra mining rate for wet mines would not bring the owners of such mines "into such a *condition that they could not compete with their neighbors. They are in the same markets.*" [1] And so the matter was dropped.

Several obstacles exist to an absolute and logical application of the theory of competitive equality. If the theory were logically applied wage rates would have to be based on a mass of cost-accounting data—and such data have never been available to a Joint Conference. It would involve, too, a change in wage rates with every change in freight rates, markets, and competitive conditions. The impracticability of such a course has led to the application of this theory in only a rough and general way. In fixing rates for pick mining a system of differentials of a general sort has been adopted to provide for varying conditions.

III. THE MINERS' INTERPRETATION OF COMPETITIVE EQUALITY

The most significant obstacle to the employment of the principle of competitive equality, however, is the manner in which the principle has come to be defined by the miners. The miners' interpretation of competitive equality has departed from that

[1] Ibid., p. 396. (*Italics are author's.*)

which was originally adopted by the Interstate Joint Conference and which is still held by the operators.

The miners' interpretation has followed lines quite different from those followed by the operators and has fitted in more nearly with that which prevails in the affairs of the commercial world. The conception of competitive equality has always been the ideal of the world of commerce and indeed has been the fundamental assumption underlying all economic reasoning which has concerned itself with price theory. It has also served as the ideal sought by the legislation which has endeavored to regulate modern commerce; for instance, in the Sherman anti-trust laws, the Federal Trade Commission Act, and all other attempts to eliminate restraint of trade. It has served, too, as an indirect basis for much of our labor legislation, particularly minimum wage laws, woman and child labor laws, and the like. In these cases, however, the end sought by competitive equality has been the placing of all competitors on an equal footing as regards certain definite rates and conditions, the idea being that competition to be equal must give to all an equal start and leave to the operation of competitive forces the determination as to who shall win in the economic race. If all employers are compelled to pay the same minimum wage, and are compelled to obey the same rules, then he who is most efficient will get to the top and not he who can squeeze his labor the hardest. The abolition of railroad rebates, the elimination of unfair competition, and all other

similar legal requirements of modern industry and commerce are based on the same idea.

Competitive equality in these instances means having all individuals on the same plane at the start, the assumption being that the superior will win out. (It is just the reverse of unequal competition, where the meanest individual—he who is willing to stoop the lowest—is usually the most successful.) It is this conception of competitive equality that has dominated the philosophy of the trade-union movement, and the claim has always been that the trade union puts all employers within the same competing area on an equal competitive footing; that is: *trade unions make uniform the conditions of all employers* and lend assurance to the individual employer that any competitive advantage which may inure to others in the industry will not be the result of undercutting the wage rate but rather of superiority in management, equipment, etc. It puts all of the individuals in the industry on an equal footing at the start and allows those who are most fit, rather than those who are most effective in cutting wages, to get to the top.

It appears that something like this philosophy, together with a desire to fix uniform minimum earnings for their members, has dominated the United Mine Workers from the very beginning of its existence. To be sure, the operators' interpretation of what competitive equality means occasionally finds frank acceptance by the union representatives. Existing evidence, however, leads one to believe that the weight of opinion among the miners accepts

as competitive equality a system of uniform wage rates and uniform conditions throughout the industry. As far back as 1901, in fact, Mr. T. L. Lewis,[1] an officer of the national union, enunciated this idea in the following words:

> Mr. Morton spoke of the earning power of a man. That is a rather peculiar question to introduce in a Joint Conference. First, we want to get on a relative competing basis, then we want to switch off on the earning power of a man as compared in one district with another. *This organization doesn't pretend to in any manner make up for the unequalities that nature has made in the different veins of coal.*

Further emphasis was given to this view in the following year by Mr. John Mitchell,[2] then president of the United Mine Workers, when he said: "I want to assure the operators, and everyone else, that the United Mine Workers of America favor reaching an agreement by the application of reason and good sense. *We expect conditions to be made uniform.*" Again in 1910, Mr. William Green,[3] now secretary of the United Mine Workers, affirmed the same idea in stating:

> I think the fundamental basis upon which this movement is established is to bring about as near as possible

[1] Fourth Joint Conference Coal Miners and Operators, Illinois, Indiana, Ohio, and western Pennsylvania, p. 74, 1901. (*Italics are author's.*)

[2] Fifth Joint Conference, Coal Miners and Operators, Illinois, Indiana, Ohio, and western Pennsylvania, p. 53, 1902. (*Italics are author's.*)

[3] Proceedings Joint Conference of Coal Operators and Coal Miners, western Pennsylvania, Ohio and Indiana, p. 175, 1910. (*Italics are author's.*)

equal competitive opportunities and relations between the different districts. *I can not understand by what process of reasoning you can say in one district, or in another portion of the same district, that a certain price shall be paid for a certain class of work and in another district or in another portion of the same district that a different or lower price shall be paid.*

Perhaps the most clearly presented exposition of the same view was made four years later by Mr. Green:[1]

A uniform wage scale for all classes of outside and inside day labor is demanded. *The basis of this is that the same prices shall prevail in one district that prevail in another;* that you shall, so far as this interstate movement can provide, all be placed upon a basis of competitive equality, and that is the basic principle upon which this movement is founded. . . . It is a proposition that will put every coal producer upon a competitive basis.

Innumerable citations might be made of similar interpretations on the part of the union leaders, and it appears that even some of the operators at one time looked upon competitive equality in this same light. One finds, for example, that the following resolution was submitted before the Interstate Conference of 1901 by an Illinois operator.[2]

Resolved, That inasmuch as the foundations of the interstate movement are based upon competitive or commercial uniformity and not upon geographical lines, the scale of wages and conditions must be uniform throughout the States parties to that movement, the scale committee

[1] Interstate Joint Conference Coal Operators and Coal Miners, western Pennsylvania, Ohio, Indiana, and Illinois, p. 13, 1914. (*Italics are author's.*)

[2] Fourth Joint Conference, etc., p. 145, 1901.

is hereby instructed to draft an agreement to cover the prices of both pick and machine mining in said competitive field based upon lines of uniformity.

With such conflicting views as to how the basic principle underlying the determination of wage rates should be interpreted, considerable variation in the policy adopted by the various Interstate Conferences has been inevitable. Whether competitive equality as interpreted by the operators or competitive equality as accepted by the miners has been the dominant guiding factor, has in most part been determined by the varying relative strength of the opposing sides. Wherever possible the union has pressed its case for uniformity of wages and conditions and, as will be seen shortly, has already been successful in having a uniform wage scale for inside day labor adopted throughout virtually the entire Central Competitive Field and is constantly making strenuous attempts to put all outside labor on a similar basis.

A clear conception of the practical results brought about by the absence of a uniform interpretation of competitive equality can be secured only from an analysis of the rate structure built around the principle. The five chapters that follow will accordingly undertake to describe the system of wage rates which today prevails in the organized coal districts.

CHAPTER V

HOW PICK-MINING RATES ARE MADE

The first problem which usually presents itself for solution by the Interstate Joint Conference is the determination of the basic rates for *pick mining* for the four States in the Central Competitive Field. These rates are usually the most significant of those to be agreed upon, for they not only determine in large part the rates that will be paid for machine mining, but they also influence the rates for day labor. Moreover, the rate for mining coal (that is, cutting and loading)[1] is the most important single item of expense involved in getting coal out of a mine. To be sure, other factors, such as the wages of inside and outside laborers, the cost of materials, etc., play an important part in the cost of producing coal. Indeed, it has been estimated that the cost of cutting and loading is equal to but two-fifths—and in many mines even less—of the total cost of producing coal. Yet the cost of cutting and loading is always the largest single item involved.[2]

[1] See p. 20–24.

[2] Ogle, A. M., Testimony, Investigation of Wages and Working Conditions in the Coal-Mining Industry: Hearings on H. R. 11022 before Committee on Labor, House of Representatives, 67th Cong., 2d sess., p. 162, 1922.

I. BASING-POINT RATES

In fixing the basic rates for pick mining, the theory of competitive equality as interpreted by the operators has played a significant role.[1] An attempt was made to select four mining centers—one in each of the four central States—where conditions were approximately identical, to serve as the standard from which variations throughout the Central Field should be measured. Accordingly the Hocking Valley of Ohio, the Danville district of Illinois, the Pittsburgh thin vein of Pennsylvania, and the Bituminous district of Indiana were originally selected in 1898 as basing points, because at the time they were the most important fields in the country and had rather homogeneous conditions. They were the oldest active centers in their respective districts, had coal seams very much alike, and had been started under more or less uniform conditions. They were worked by miners who had had similar experiences and who were influenced by a similar philosophy in respect to labor relationships. Then, too, these centers were the strongholds of the United Mine Workers organization and represented the bulk of trade-union membership in the coal industry. This combination of circumstances had brought about a fairly definite relationship between the wage rates paid at the four basing points, even as far back as 1886.

[1] See pp. 72–75.

In that year the rates per ton paid for pick mining at these points were:[1]

	Cents
Pittsburgh (thin vein)	71
Indiana Bituminous No. 1	65
Grape Creek, Illinois (Danville)	75
Hocking Valley	60

At first glance the differences between these rates appear rather large; but when they are compared with the 90-cent rate at Des Moines, Iowa, and the 95-cent rate paid at Wilmington, Ill.,[2] they seem rather small. By 1897 these variations had become even smaller, the pick-mining rate for screened coal being as follows:

	Cents
Pittsburgh (thin vein) [3]	65
Indiana Bituminous [4]	56
Grape Creek, Illinois (Danville) [5]	65
Hocking Valley [6]	56

Even these differences were eliminated in the Interstate Joint Conference of 1898 when a standard pick-mining rate of 66 cents per ton of screened coal was adopted for the Pittsburgh, Indiana Bituminous, and Hocking Valley basing points, and 40 cents was adopted for run-of-mine coal for the Grape Creek (Danville) district of Illinois.

[1] Evans, Cris, History of the United Mine Workers of America, vol. 1, p. 501 (1920?).

[2] Ibid., p. 501.

[3] Ibid., p. 486.

[4] Ibid., p. 482.

[5] Ibid., p. 485.

[6] Scale agreement of United Mine Workers of America, District No. 6, Ohio, 1922.

The joint agreement of 1898 made provision for two methods of paying the miner for his coal. Prior to 1898, virtually all coal was paid for on a screened basis; that is, all coal mined was sent over a screen and the miner was paid only for that portion of the coal that passed over the screen. This method of payment was adopted because the commercial demand of the early days was almost entirely for lump coal, the fine coal or slack being little in demand and often considered to be waste.[1] With the growth of steam transportation and manufacture, however, the demand for fine coal increased and at times it commanded almost as high a price as lump coal.

Moreover, many abuses of this method of payment had grown up. The unscrupulous operator would often use spreaders which broke up the coal or installed screens with large holes or would neglect to repair broken screens. In this way he avoided paying the miner for all the coal he should legitimately have paid for. This situation made the miners feel that they were entitled to compensation for all of the coal they mined rather than for the lump coal alone, and to eliminate abuses they had early begun to demand regulation of the size of the openings and of the total surface of the screens. This they obtained in 1898 for screens that were used at the four basing points. Such regulation did not, however, fully satisfy the miners,

[1] Suffern, A. E., Industrial Relations in the Coal Industry: Investigations in Industry and Labor, Institute of Economics, Washington, D. C., 1924.

who continued to feel that they should be paid for all the coal they mined. Year after year they insisted on a run-of-mine basis of payment, only to have their demands put off by the operators, who argued that the rate for mining coal on a screened basis was higher that it would have been under a mine-run system, and this higher rate included payment for the fine coal that fell through the screen holes. The operators insisted, too, that the screen system of payment was necessary to maintain high standards of workmanship among the miners, particularly to compel them to load only clean coal and keep out dirt and impurities.

The majority of the operators were successful in maintaining their stand on this issue for eighteen years. In Illinois, however, the run-of-mine system of payment was forced upon the operators by the strike of 1897. Consequently, the rate fixed for the Grape Creek (Danville) district in Illinois by the Interstate Joint Conference of 1898 was a run-of-mine rate. Screen rates were fixed for the other three basing points, although the operators at these centers were given the option of paying on either a screen or run-of-mine basis, according to market requirements. Subsequently, in 1900 a run-of-mine rate of 40 cents was fixed for Indiana, with the provision that all coal shipped to the market as mine-run coal must be paid for on that basis. For Hocking Valley and Pittsburgh the mine-run rate was to be determined by computing the actual amount of screenings that passed over an adopted standard screen of certain size and form;

that is to say, the rate was to be determined by experiment with a given standard screen, the actual amount to be paid for mine-run coal being fixed by the percentage of slack in the average ton of coal mined. Thus, if experiment showed that on the average one ton out of every three mined was slack, the rate for mine-run coal was to be so fixed that the miner would get for three tons of mine-run coal an amount equal to what he would have received for two tons of screened coal.

This run-of-mine rate for points other than Danville was not of very great significance so far as actual payments were concerned, for relatively few operators outside of Illinois paid by the mine-run method. The provision for allowing its use, however, was of considerable import, for experiments showed that the percentage of slack in the coal mined varied from place to place and according to the demands of the market. Thus the mine-run rate at Hocking Valley was fixed after local experiments had been made at 47.14 cents, a rate which was 17 per cent greater than the mine-run rate for Danville and for Indiana. Similarly, the rate for the Pittsburgh thin vein was fixed at 42.66 cents per ton or 6 per cent higher than the Danville and the Indiana mine-run rate. This meant variations in the mine-run rate set for the four basing points, and was to be the cause of difficulty in later years, when the question of mine-run payments became of real significance. In 1914 the United Mine Workers, after a fourteen months strike, succeeded in securing the acceptance of this method of pay-

ment in Ohio and in 1916 forced its adoption throughout the Central Competitive Field.[1]

The need for negotiating a run-of-mine rate for all the basing points caused considerable controversy, at the Joint Conference of 1916, as to the justice of a uniform rate for the four centers, the effect of uniformity on competitive equality, and the advisability of having different rates for different points. A compromise was made and a pick mine-run rate of 67.64 cents was fixed for Hocking Valley and Pittsburgh, and a 64-cent rate for Danville and Indiana. This created a differential of 3.64 cents between the pick mine-run rate established at the Danville and Indiana basing points and the Hocking Valley and Pittsburgh basing points, a differential which is still maintained. Consequently, the pick rate today at the Illinois and Indiana basing points is $1.08 and at the Ohio and Pittsburgh basing points is $1.1164. Prior to April 1, 1923, no provision was made for overtime work. At present such work, where required by emergency, is paid for "at the rate of time and one-half, with double time for all work on Sundays and legal holidays."

II. DIFFERENTIALS FOR VARYING CONDITIONS

Since the pick rates fixed for the four basing points by the Interstate Joint Conference are but the framework of the wage structure for the organized

[1] The Indiana Block District, because of the quality of the coal, was made an exception, and here rates for screened coal are still in existence.

coal fields, much remains to be done by the district and subdistrict conferences. The most significant function of these conferences is the adjusting of the pick-mining rates for the different mining centers within each district to those agreed upon for the basing points. These rates, too, are supposedly adjusted with a view toward bringing about competitive equality.

To obtain competitive equality a system of differentials which makes provision for variations in geographical and geological conditions has been adopted. That is to say, the operator whose mine is unfavorably located with respect to distance to the market is allowed a lower wage rate to offset the higher freight charge which his product must bear. Similarly, although the mine owner whose property is in a thin seam of coal is compelled to pay a wage rate higher than that paid in the better seams, he is allowed a differential which makes his wage rates lower than conditions of mining would justify. The former differentials have come to be known as "freight differentials." The latter as "thin-vein differentials."

The Freight Differentials.—When all other conditions are uniform, it is assumed that the relative distances from the various mining centers to the market and the resultant differences in freight rates will affect the variations in the pick rates within each district. Freight differentials were a feature of the early wage agreements and many evidences of the part played by freight rates are found in the early history of district agreements. For instance:

In the Pittsburgh district there is a differential which gives to the miner in the so-called thin seam 8.53 cents more per ton than is paid to the miner in the thick seam. This differential, it is claimed by the representatives of the miners' organization, originated, not in the variations in the thickness of the Pittsburgh seam, but in a difference that once existed between the transportation cost of coal from the mines above the locks on the Monongahela River and the coal from other sections of the same district. This differential was created a good many years ago by the operators on the Monongahela River to recompense them for the lockage fee which they were compelled to pay to the owners of privately owned locks when their coal was towed from their mines to the market. This lockage fee meant higher freight rates for these operators than for their competitors and it was assumed that this difference should be recognized in determining the mining rate.[1]

In Illinois a similar differential between the pick rate in the different mining fields still exists. The pick-mining rate for the miner of southern Illinois is 4 cents less than that in central Illinois, a condition that is said to owe its origin to the fact that the cost of transporting coal from the former field to the principal market (Chicago) is greater than that from the central Illinois field. This inequality in the transportation charge, it was said, put the operators of the southern Illinois field at a disadvantage in competing with their northern neighbors, and it was taken for granted that the miner should bear

[1] U. S. Bituminous Coal Commission Minority Rept., p. 66, 1920.

part of the burden of equalizing this situation. This difference in freight charges could be offset by a lower production cost in the southern field, and this end was brought about by giving the miner a lower wage rate.[1]

Some freight differentials have inured to the benefit of the miner. Mining points might be cited where a low freight rate to the principal market has given to a limited group of operators competitive advantage over all other operators entering the same market and where this superior position has been capitalized by the local miners as a means for securing higher wage rates. In one subdistrict of Illinois, for example, all of the miners in a certain region are given a uniform pick rate. It appeared at one time, however, that the operators around the town of Virden, which had the same pick rates as the neighboring towns, were getting better market facilities in the form of a 5-cent lower freight rate than their neighbors. This advantage, it was believed, should be removed, and it was proposed at one of the district conferences that the mining rate at Virden be 5 cents higher than that for the rest of the district. The Virden operators did not object very strenuously, and, indeed, one operator unguardedly stated that the conference could do as it pleased, as a railroad manager had promised Virden a 5-cent freight differential anyhow. This remark, of course, closed the matter, and the miners were given the 5 cents which the operators obtained from the rail-

[1] Green, William, Brief of the United Mine Workers, filed with U. S. Bituminous Coal Commission, vol. 10, p. 489, 1920.

road, thereby leaving the Virden operators on the same competitive basis as before.[1]

Another interesting and somewhat similar case was revealed in a report of a committee appointed some years ago to consider the request of the operators in the Chicago & Alton district of Illinois for a reduced mining rate. One of the reasons advanced for this request by the operators was that most of their coal went to the Chicago market and that the excessive freight rate of 85 cents a ton made it impossible to compete with other operators entering that market. In refusing the demands of the operators, the committee said:[2]

> We desire to say that there has been an abundance of evidence introduced which shows that other coal companies operating similar veins of coal shipping to the same markets, paying the regular scale of 40 cents a ton, located a greater distance from Chicago, shipping at published freight rates of 85 cents a ton, have been able to secure a greater volume of business than that of former years. * * *
>
> Mr. Simpson of the Consolidated Company, Mr. Moorehead of the Madison, and other operators present stated that they had received rebates on coal shipped to Chicago on other coal-carrying roads; it having been clearly proved that the coal companies on competing lines are given a rebate from published freight rates, it is safe to presume that mines on the Chicago & Alton Railroad receive the same rebate. * * * It is the opinion of this board that if the Chicago & Alton Railroad does not

[1] Regulation and Restriction of Output: Eleventh Special Rept., [U. S.] Commissioner of Labor, p. 393, 1904.

[2] Evans, Cris, History of the United Mine Workers, vol. 2, p. 600, (1922?)

treat its patrons with the same consideration that competing roads do, this is no reason why the whole burden should be borne by the employees of said mines.

The Thick and Thin Vein Differential.—The problem of fixing a wage rate which will allow for differences in natural conditions, is much more complex than that which is presented in dealing with transportation costs. Mining conditions in the different districts vary; and the diversity is often very great. Some mines work in 16- and 18-inch seams, and others work in 34-foot seams. In the thickest seams the miner can with little endeavor get down a considerable amount of coal in a day; whereas in the thinner seams he must work hard to turn out a relatively small amount. The difficulties the miner encounters when the coal gets down to 2 to 3 feet in thickness are pictured clearly by William Green, secretary of the United Mine Workers:[1]

Mr. Green: Regarding mining, it all depends on the thickness of the seams, Senator, as to the amount of coal that a miner can load. If the coal is a high seam of coal, he will load considerably more coal than he will in these low seams.

Senator Kenyon: What kind of position does he have to get in to do his work?

Mr. Green: In the low seams he works either on his knees, or just rolls along and works as best he can in that crowded, cramped space.

[1] Green, William, Testimony, Publication of Production and Profits in Coal: Hearings on S. 4828, before Committee on Manufacturers, U. S. Senate, 66th Cong., 3rd sess., p. 1218, 1921.

The Chairman: Does he work standing?

Mr. Green: No; he can not work standing in 2-foot coal; where it is 2 feet high it is impossible for him to stand.

Senator Kenyon: He has to crawl through sometimes, does he not? I have been in mines where you had to get down and just crawl along.

Mr. Green: Oh yes; you just go along as best you can in that space.

Senator Kenyon: It must be a delightful occupation.

Mr. Green: I judge that [indicating] is about 2 feet high, from the table to my hand, and that is the height of the seam of coal, and in that space he works.

The Chairman: He works in a space not more than 2 or $2\frac{1}{2}$ feet high?

Mr. Green: Yes; where the seam is no higher than that.

Senator Kenyon: He lies down and works, does he not?

Mr. Green: He lies down and works, and then when he shovels, he must shovel as best he can in this way the coal into the car.

The assumption that the mining rate must allow for variations in mining conditions through a thin-vein differential is diametrically opposed to the assumptions underlying the freight differential. Yet this doctrine, based on the conviction that additional payment should be made to those miners employed in seams where mining is more difficult, has been accepted as an underlying tenet of rate determination. When transportation costs are taken into consideration competitive equality is the end in view. Competi-

tive equality in this instance means an approximately equal cost for all operators entering the same market, and differences in transportation costs are assumed to be sufficient cause for variations in wage rates. Now when mining rates are adjusted according to differences in mining conditions with a view to recompensing the miner working under unfavorable conditions for the greater difficulties he encounters, a condition arises that is quite the reverse. Paying a higher rate to the miner working in the thin seams, where mining is harder than in the thick seams, means that the operators in the thin seams are put at a competitive disadvantage. Nature has already made the burden of the thin-seam operator more severe than that of his competitor.[1] The output of his property is limited by the difficulties and often the impracticability of using machinery; and much extra work of taking down roof and digging up floor is necessary. These conditions add to the cost of mining coal and do not exist in the thick seams. If, now, his burdens are

[1] It does not necessarily follow "that the thicker the seam, the lower will be either the labor cost or the total f.o.b. mine cost per ton. The analysis of cost by thickness of seam mined, shown in the Federal Trade Bituminous Coal reports, indicates that after a certain thickness of seam is reached — in most districts between 5 and 6 feet —the mining of thicker seams involves higher costs. In other words both labor and total f.o.b. mine costs per ton in a given field are likely to decrease as the thickness of seam increases from 2 feet up to between 5 and 6 feet, and then to rise as the thickness increases still further. Apparently, in such cases, it is the greater amount of labor and supplies required in timbering the thicker seams which increase the costs."- *Shurick, A. T., Coal Mining Costs, p. 22, New York, 1922.*

still further increased by compelling him to pay more for each ton of coal mined than does his competitor in the thick seam, his competitive position is made still more unfavorable.

The miners insist that they should not be compelled to suffer all the losses due to natural disadvantages. They have always insisted that the burdens imposed by differences in natural conditions be partly borne by the operator. They demand a high pick rate for thin-seam mines, and they contend that even with this higher rate they finally bear part of the burden. Their earning capacity in the thin veins is necessarily smaller than that of their more favorably located fellow workers, and a higher rate is necessary to enable them to maintain their standard of living. Moreover, the recompense they receive for the energy and time spent in mining a ton of coal is much smaller. A man has to perform more labor and must work much longer to produce a ton of coal in the thin seams than he does in the others. This means that any rate which would pay the miner for the extra and more difficult work he does in the thin-vein mines would increase the cost of coal in these mines to such an extent that the operators working them would be forced from the market, with the resultant shutting down of operations. To keep these mines going, therefore, the miners must accept a rate which is not high enough to pay them fully for their unfavorable position. Such being the case, they ask: Why should not the operator be compelled to bear part of the burden of adverse natural conditions by paying a wage rate

which is higher than the rate paid in the thick seams?

The miners have in fact succeeded in getting the operators to accept this point of view. In a discussion centering about a proposed increase in wages at the Interstate Joint Conference of 1917, this fact was well brought out by an Illinois operator.[1]

> We must not ignore in determining what is best to be done the point * * * that the earning power of the miner does not increase as much in the thin seams in an advance as it does in the thick seams, and we must not ignore the fact that the flat advance means a much greater increase in the cost of production in the thin seams than in the thick. That will be there as long as time runs, * * * It has been recognized all along that the thin seams of northern Illinois should not be as profitable a venture as the thick seams. The miners and the operators each contribute their share of the burden, the operators in smaller profits and the miners in smaller wages (earnings)

This principle of wage determination for localities with varying conditions has in fact been almost universally adopted. It was first incorporated in the Interstate Joint Agreement when provision was made for a separate rate for the western Pennsylvania thin veins as distinguished from thick veins in the same field. Later a similar distinction was made in the Interstate Agreement between certain sections of Ohio, and today the contracts in most of the districts make specific provision for differences in the thickness of the seam. Thus in

[1] Bent, Testimony: Proceedings of Interstate Joint Conference of Coal Operators and Coal Miners, western Pennsylvania, Ohio, Indiana, and Illinois, p. 88, 1917.

Indiana, where the workable seams vary from 2 to 8 feet in thickness,[1] a standard height of coal has been accepted as the basis for fixing the pick rate. This standard for all mines opened prior to April 1, 1901, is 3 feet 3 inches. For all mines opened after that date it is 3 feet 6 inches. These standards serve, as it were, as a minimum below which the pick rate in Indiana can not go. For all seams which are of standard or above standard thickness the rate fixed at the Interstate Joint Conference is applied; this rate at the present time is $1.08 per ton. To compensate for the greater difficulties encountered in mining thinner seams a rate of $1.17 has been set for coal less than the standard but more than 2 feet 9 inches in thickness. For still thinner seams where still greater difficulties exist a rate of $1.21 per ton has been set. This rate applies to all coal less than 2 feet 9 inches and more than 2 feet 6 inches thick.

Like provisions exist in Illinois, where the standard adopted in several of the subdistricts has been set at 5 feet. In subdistrict 5, known as the "Belleville" district of Illinois, an extra 5 cents is added to the pick rate when the seams are 5 feet or less in thickness. Similarly the wage contracts of subdistricts 7 and 9 provide for an extra 5 cents per ton for all coal 5 feet and under. The standard height for the Hocking Valley of Ohio is 4 feet, and the $1.1164 rate established for the basing point is applied to standard seams.

The same standard height and standard pick rate

[1] The Coal Catalogue, Pittsburgh, Pa., p. 373, 1922.

is fixed for the Amsterdam-Bergholz section of subdistrict 4 of Ohio, and additional amounts are allowed to the pick miners employed in thinner seams. The contract for this section provides the following rates for mining coal:

Under 4 feet to and including 3 feet 6 inches.	$1.1867
Under 3 feet 6 inches to 3 feet 3 inches.....	1.207

In the Massillon district of Ohio, where the standard is 3 feet 6 inches, the pick rate is $1.1817; additions per ton for thinner seams provided by contract are:

	Cents
For seams 3 feet 6 inches to 3 feet 3 inches.....	2.16
For seams 3 feet 3 inches to 3 feet.....	4.32
For seams 3 feet wide.....	8.64

and 4.32 cents additional for every 3 inches below 3 feet.

The East Palestine section of subdistrict 4 has a standard of 3 feet 8 inches, for which a pick rate of $1.18 is set; substandard seams running down to 3 feet have a $1.24 cent rate, and seams below 3 feet a $1.30 rate.

Comparison of these rates reveals considerable differences in the extent to which the differentials between the thick and thin veins compensate the thin-vein miner for his unfavorable position. Thus the rate paid for coal mined in a 3 feet 6 inch seam is $1.08 in Indiana; $1.1817 in the Massillon district, Ohio; and $1.24 in the East Palestine district, Ohio. These differentials, like others which

will be discussed later, are evidently the results of the relative bargaining strength of the opposing sides in wage negotiations.

Wherever the union has been the more powerful the thin-vein rate has been high and the compensation of the miner for his unfavorable condition has been relatively high; that is to say, the operator has borne the larger part of the burden. On the other hand, where the operators have had the upper hand the reverse has been true and the miner has been compelled to bear the larger part.

Both sides in fact pay part of the cost of maintaining the thin-vein mines in operation. The operator pays through the higher wage rates he is compelled to give the miner, and the miner pays through a lower earning capacity and smaller recompense for the relative energy he expends.

This situation will in all probability continue. Any attempt to decrease the differential between the thick and thin veins by lowering the thin-vein mining rate, besides being vigorously fought by the United Mine Workers, will have some effect on the labor supply in the thin seam. On the other hand, any considerable increase in the differential resulting from an increase in thin-vein rates will mean that the thin-vein operators can not compete with their more favorably situated neighbors. Indeed, the United Mine Workers have openly accepted this condition and their officers frankly state that even if they were powerful enough to secure a higher differential for the thin veins, they would soon reach a limit beyond which the thin-vein mines could

not remain in operation in competition with the mines in the thicker seams.

It would seem, then, that the principle of competitive equality ultimately plays a part even in the fixing of the differentials for the thick and thin veins. It determines the upper limit beyond which the thin-vein rate can not go, for too high a rate might so increase the cost of mining in these veins that they could no longer compete with the thick-vein operators. In such event it would defeat its own purpose and through the shutting down of the thin-vein mines would lessen rather than increase the income of the miners employed in these mines. It would throw miners out of work.

CHAPTER VI

HOW MACHINE RATES ARE MADE

The preceding chapter was devoted to a discussion of the details of fixing the pick-mining rates. Attention was given to the freight and the thick and thin vein differentials—differentials which have been recognized for many years by both operators and miners and whose amounts are fixed by the district and subdistrict conferences. The freight differential was established to enable the operators to hold their own in the coal markets against competitors, and the thick and thin vein differential to enable miners working under difficult conditions to earn wages comparable with other miners working under easier ones.

The present chapter will concern itself with a third differential, comparatively modern, known as the machine differential. It is a bone of contention between the miners and the operators, each of whom wants the largest possible share in the profits that arise from the use of the mining machine.

The fixing of machine-mining rates did not become of importance until near the end of the last century. Back in the eighties and nineties, when the Interstate Joint Conference movement was in its infancy, little was heard of them, for virtually all mining

was pick mining.[1] In 1891 only 525 machines were in use in the mines of the United States, and they produced only about 6,000,000, or 5 per cent, of a total output of 118,000,000 tons of coal. Under such conditions it is evident that little attention would be paid to machine wage rates.

The decade of the nineties, however, witnessed a considerable growth in the number of machines, and by 1898 2,622 machines were in use, with a production of 32,000,000 tons, or 20 per cent of the total for the country. In spite of the growing significance of machine mining the Joint Conference of 1898 concentrated its efforts on a pick-mining rate for the Central Competitive Field, and dealt with the machine question only to the extent of providing that "the same relative prices and conditions between machine and pick mining that have existed in the different States shall be continued during the life of this contract."

For years the operators and miners had disputed over the distribution of the benefits of machine mining between the miners and the mine owners who installed the machines. These "same relative prices and conditions" were the results of this struggle. Now it has always been the contention of the miners that the difference between pick and machine mining rates should be equal only to an amount which will give to the owner a "fair" return on his investment in the machine. That is to say, the differential between the two rates should be an amount that will pay to the owner the cost of

[1] See p. 231.

installation, upkeep, and depreciation, as well as a "fair" profit. Any machine-mining rate which allows for more than this, the miners insist, may not only prove prejudicial to the income of the machine miner as compared with the pick miner, but may also put the owner of a machine mine in a more advantageous position than the owner of a pick mine. More than a fair return on the investment in the machine will permit machine-mined coal to enter the market on more advantageous terms than pick-mined coal.

Mr. Mitchell, of the miners' organization, clearly enunciated this idea in 1901 in the following words:

> Mr. Robbins admits that the cost of machine mining as compared with pick mining is favorable to the operators. We contend, and I believe justly so, that there should be no advantage to an operator who owns a machine mine over the operator who owns a pick mine. I agree that they ought to have a fair profit on their investments, but they should not be permitted to send coal into the markets and sell it for a less price than those who operate pick mines. Therefore, I contend that there ought to be a fixed differential of a certain number of cents, and that that differential should remain that way regardless of what the cost of pick-mined coal is.[1]
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> * * * There must be as favorable opportunities within the districts as between the districts, and if a machine mine has advantages over its immediate competitors in the same district it is not entitled to it, as far as the principle of this movement is concerned, that there must be relative prices and equal conditions within the districts.[2]

[1] Mitchell, John, Fourth Joint Conference, Coal Miners and Operators, Illinois, Indiana, Ohio, and western Pennsylvania, p. 70, 1901.

[2] Idem, p. 144, 1901.

The union thus seeks protection for the pick miner; but not through restricting either the use or the output of machines. They contended again and again in the various joint conferences that they have no objection at all to the use of machinery. What they ask is that the return to the operator from the employment of machinery be limited to a fair amount. Otherwise the advantage will be used to cripple and eventually close the mines that do not use machines. Only in this way can the existence of the pick miner be protected, and they believe that this end can be attained by keeping the differential between the pick and machine rates as small as possible.

The operators have insisted that they are entitled to share in the lower costs due to the use of machines. A fair return on their investment in machinery is not sufficient. The miner who works in a machine mine, they claim, has a greater earning capacity than has the pick miner; and a low machine rate, even if considerably less than the pick rate, will allow the same income to the man who works under machine conditions as to the man who uses a pick. And, indeed, they have at times insisted that "There is nothing in the [machine] situation which can justify [the miner] in demanding more in the nature of recompense for a man who follows the machine than the man who works behind the pick."[1] That is to say, a machine rate so adjusted as to allow the miner in a machine mine to earn the same amount

[1] Bogle, , Fourth Joint Conference Coal Miners and Operators, Illinois, Indiana, Ohio, and western Pennsylvania, p. 77, 1901.

as the miner in a pick mine ought to be accepted as just,[1] and the operator should be entitled to any resultant saving from such a schedule.

In spite of the conflicting nature of the demands made by both sides in dealing with the machine rate, one common factor is the central point from which they both work, namely: the pick rate. The miners contend that the machine rate should be equal to the pick rate minus the cost of maintenance and a fair profit, and the operators contend that the machine rate should be an amount which will yield an income to the machine miner equal to that of the miner working under a pick rate.

A uniform system of machine differentials came into existence in 1898. Some of the districts where machines were in use had local differentials and others had provisions for day and hourly rates for machine workers.[2] In District No. 11 (Indiana) the agreement of 1892 called for a 70-cent pick rate with a $52\frac{1}{2}$-cent machine rate, allowing a differential of $17\frac{1}{2}$ cents on each ton of coal to cover the cost of maintaining the machine and the profits on the investment. The Hocking Valley (Ohio) contract for the same year had the same pick rate as did Indiana. Its machine rate, however, was 46 cents, giving the operators of machine mines a 24-cent differential or $6\frac{1}{2}$ cents more than had been allowed their competitors in Indiana.

[1] Reez, J. P., Fourth Joint Conference Coal Miners and Operators, Illinois, Indiana, Ohio, and western Pennsylvania, p. 77, 1901.

[2] Evans, Cris, History of the United Mine Workers, vol. 2, p. 564, (1922?).

Variations of this sort were quite common in the nineties; and even after the adoption in 1898 of a uniform 66-cent screened pick rate for Pittsburgh, Hocking Valley, and Indiana and a 40-cent mine-run pick rate for Danville, Ill., the machine differentials for these four points continued to show considerable divergence. The differential for screened coal at Pittsburgh and Hocking Valley was 22 cents per ton and for Indiana 16½ cents per ton.[1] The differential for mine-run coal was 16 cents for Pittsburgh, 12½ cents for Indiana, and 10 cents for Danville, Ill. Ohio had no mine-run machine rate.

The machine rate for District No. 11 (Indiana) was fixed in the district agreement of 1898 at 49½ cents or three-fourths of the pick-mining rate of 66 cents; this allowed the Indiana operators a differential of 16½ cents as opposed to 10 cents at Danville, Ill. With the attempt to establish competitive equality by the Interstate Joint Conference in 1898, the Illinois operators demanded that they be put on a more equal basis for machine mining with Ohio, Pennsylvania, and Indiana. This would have meant a larger differential for Illinois, a reduction of the differential in the other States to the level of Illinois, or a compromise scale making all of the States equal. However, their attempts to

[1] Two types of machines are used in undercutting coal: the *punch machine* and the *chain machine*. The former are the more difficult to operate and where they are used a higher rate is paid to the miner. The chain machine is the more commonly employed at present, and all machine rates discussed in this section are those paid for chain machines. The general problems here developed are applicable to both types.

adjust this inequality at the Joint Conferences have failed and to this day the 10-cent differential for Danville is still in force.

This failure to adjust the Danville, Ill., differential did not, however, allow the Indiana operators, the nearest competitors of Illinois in the Central Field, to continue to profit by its lower machine rate, for the advantageous position of Indiana in this connection was changed by the Interstate Joint Conference of 1901. This conference cut down the $16\frac{1}{2}$-cent differential in Indiana and specifically provided that the mine-run machine rate for the Indiana Bituminous district should be $12\frac{1}{2}$ cents per ton less than the pick-mining rate. This differential has been maintained with slight variation, the rate today for machine mining being 96 cents and that for pick mining $1.08 per ton.

The machine differentials for the Pittsburgh and Ohio basing points have not remained stationary. During the sixteen years ending in 1914 the differential for machine mining in the Hocking Valley, Ohio, and at Pittsburgh varied from $22\frac{1}{2}$ cents in 1900 to 31 cents in 1912. This fluctuation was the result of the system adopted at these basing points of maintaining unchanged from year to year the percentage ratio between the pick and machine rates that prevailed in 1898. In that year the machine rate was 44 cents ($66\frac{2}{3}$ per cent of the pick rate). This ratio was continued until 1914; and every change in the pick-mining rate between 1898 and 1914 altered the actual amount of money that went to the mine owner to cover the cost of machine

installation and maintenance. Thus the increase in the pick-mining rate in 1900 from 66 cents to 80 cents changed the machine rate from 44 cents to 53 cents, with a consequent increase in the differential from 22 cents to 27 cents. This meant that the operator who owned machine mines automatically received a 5-cent advantage over what he formerly had. Again, the 10-cent increase in pick-mining rates granted by the Joint Conference of 1903 resulted in a 90-cent rate for pick miners and a 61-cent rate for machine mining, giving a 29-cent differential (a still further advantage of 2 cents) to the machine owner.

In 1914, when Ohio went on the mine-run basis of payment, the percentage differential was abolished and a flat 17.64-cent differential was adopted, which has been in force ever since. In 1916, the same differential was fixed for the Pittsburgh thin vein by the Interstate Conference and there, too, no change has been made to date.

Machine rates for the mining centers within the different districts are, like the pick rates, subject to negotiation at district conferences. In 1898, as a result of the strike of 1897, the machine differential for all subdistricts in Illinois except Danville was made 7 cents per ton. The miners claim that this amount is just, because it was based on the average machine differential which prevailed under non-union conditions before that year.[1] The operators of Illinois have contended ever since its adoption

[1] Regulation and Restriction of Output, Eleventh Special Rept., [U. S.] Commissioner of Labor, p. 416, 1904.

that the differential should be increased, insisting at all times that it is not sufficient to cover the expense of installing and maintaining the machines. In reply the miners have pointed to the increase in machine mining under this differential, the machine output having grown from 18.3 per cent of the total production of the State in 1898 to 56.6 per cent in 1914, and 65.5 per cent in 1921.

MACHINE PRODUCTION OF BITUMINOUS COAL IN THE CENTRAL COMPETITIVE FIELD IN 1898, 1914, AND 1921 *

(In thousands of tons)

State	Year	Total production	Machine production	Percentage of total production
		Tons	*Tons*	
Illinois	1898	18,599	3,416	18.3
	1914	57,589	32,641	56.6
	1921	69,603	45,610	65.5
Indiana	1898	4,921	1,414	28.7
	1914	16,641	9,361	56.2
	1921	20,319	10,737	52.8
Ohio	1898	14,517	5,191	35.7
	1914	18,843	16,147	85.6
	1921	31,943	29,256	91.6
Pennsylvania	1898	65,165	16,512	25.3
	1914	147,983	79,657	53.8
	1921	116,014	73,842	63.6

* U. S. Geol. Survey Twentieth Ann. Rept., pt. 6, p. 345, 1898; also U. S. Geol. Survey Mineral Resources, p. 626, 1914; p. 511, 1921.

The miners through their superior strength have been able to maintain the 7-cent differential. The result is that today the machine miners at all points in Illinois outside of Danville still enjoy a rate which is but 7 cents less than that paid to pick miners, irrespective of what the pick rate may be. In the Indiana Bituminous district the 12-cent machine differential is applied to all bituminous centers within the State and the machine miners without exception receive a wage rate which is always 12 cents less than that paid to the pick miners.

In Ohio and Pennsylvania conditions differ from those in Indiana and Illinois. The two latter States have the same differential everywhere, except at Danville, irrespective of the thickness of the seams. Ohio, however, has four different differentials. Six of its fifteen distinct contracts [1] have the 17.64-cent machine differential of the basing point (Hocking Valley). Others, which apply to localities where the seams are below standard thickness, prescribe not only pick rates that differ from the basing rate of $1.1164 but also different machine rates and differentials. The Pomeroy section of subdistrict 12 and three other sections all have a $1.146 pick rate and a 94-cent machine rate and consequently a 20.6-cent differential. Some other sections have a 16-cent differential; Crooksville has a 16.25 cent and Coshocton a 16.6 cent. The Sandy Valley contract of subdistrict 3 provides only

[1] Ohio has seventeen wage agreements, but two of them apply to strip mining.

for a $6.75 day rate for machine cutting. The loading rate in the Sandy Valley varies with the thickness of the seam.

In the Pittsburgh district the machine differential varies, as does the pick rate, with the thickness of the seam, the differential in the thick seam being 14.8 cents as compared to 17.64 cents in the thin seam.

COMPARISON OF HAND AND MACHINE RATES AND DIFFERENTIALS, PENNSYLVANIA, OHIO, INDIANA, AND ILLINOIS *

(Mine-run basis; rates in dollars and cents per net ton)

	Pick rate	Chain machine rate	Differential
Pennsylvania:			
Thin vein	$1.1164	$0.94	$0.1764
Thick vein	1.0311	0.8831	0.1480
Ohio:			
Hocking Valley	1.1164	0.94	0.1764
Jackson district	1.18	0.9774	0.2026
Pomeroy district	1.146	0.94	0.206
Massillon district	1.1817	0.9757	0.206
Tuscarawas district	1.146	0.975	0.171
Pittsburgh vein	1.1164	0.94	0.1764
Indiana	1.08	0.96	0.12
Illinois (except Danville)	1.08	1.01	0.07

* Data from Brief on Illinois Machine-Mining Differential, submitted to U. S. Coal Commission by the Illinois Coal Operators, p. 4, June 18, 1923.

Three different types of labor are employed in getting down machine-mined coal; and the machine rate must

be divided to provide a rate for each of these crafts. The problem of machine rates does not, like that of pick rates, end with the determination of the rates for the mining points in each district. Once the pick rates have been fixed for the four basing points by the Joint Conference nothing remains to be done in regard to them during the life of the contract. To be sure, pick rates within the district must be adjusted to them, but as far as they themselves are concerned negotiations have been concluded. In the matter of machine rates, however, much more remains to be done, for the machine rate is a fixed rate per ton and machine mining requires the employment of three distinct classes of men. The operation of the machine itself requires a machine runner or cutter and a helper, who do nothing but undercut the coal. Afterwards the coal must be drilled, shot down, and loaded, in some mines by one man and in others by three different persons. The machine rate fixed by the Joint Conference covers the entire payment for all of these processes and does not fix the portion of the rate to be paid for each. This is left for adjustment within the districts and results in a striking lack of uniformity in the division.

In Illinois, for instance, the district contract provides that the division be made by joint local or subdistrict meetings. The result is a considerable variation from place to place in the shares allotted to the cutters, helpers, loaders, and shot firers. In the Pittsburgh districts the wage contract provides for

a division between the cutters and loaders, the cutters receiving 16.92 cents and the loaders 77.08 cents of the 94-cent machine rate for the thin-vein district. The loaders are expected, however, to drill their own holes. In the thick vein the division of the 88.31-cent machine rate results in both the cutter and loader getting less than is paid in the thin vein, the cutters receiving 14.94 cents per ton and the loaders 73.37 cents. Neither the machine helper nor the shot firer is mentioned in the contract.

Nowhere does a better example of variation in the methods of dividing the machine rate exist than in Ohio, where no two of the seven sections that pay the 94-cent rate divide it in the same way. The contracts do provide for a division among the loader and cutter, but none of them say anything about the machine helper. The amount paid to cutters varies from 13.43 cents per ton in the Cambridge section of subdistrict 6 to 15.2 cents in the Pomeroy section of subdistrict 2, with corresponding rates for loaders of 80.57 cents and 78.8 cents. Some contracts provide that the drilling and shooting is to be done by the loader and others the loading and drilling only; still others specify a deduction from the amount paid to the loader where the drilling is done by the company. A significant feature of these contracts is the fact that there appears to be no relation between the recompense to the loaders and the work they do. Thus the 78.8-cent rate for loaders in the Pomeroy section specifies that the loading, shooting, and drilling be all done by the loader, whereas the 80.57-

cent rate in the Cambridge section, although higher than the Pomeroy rate, is payment for loading and drilling only.

Only one wage contract in a Central Competitive Field district specifically notes the rate to be paid to the machine helper. In Indiana the rate for this class of labor is fixed at 7.4 cents, as compared to 7.4 cents for the cutter and 81.2 cents for the loader. In most of the other contracts the rate is left to the cutters and helpers themselves, who usually divide the amount specified for cutting on an agreed basis, the common practice being to divide it equally. Where separate shot firers are employed, as in many mines they are, payment is made on an hourly basis, the rate in Illinois being $1.18 per hour. In some districts provision is made that he be an independent company employee over whom the union has no jurisdiction.

The lack of uniformity in the system of differentials developed to meet variations in natural and geographical conditions finds a counterpart in the machine differentials. The diversities in local practices make impossible any unity in the treatment of rates for the Central Field as a whole and have resulted in many contradictory and frequently absurd situations. They turn what might have been a well-organized and systematic institution of wage determination into one which is disorganized and inconsistent. And, as we shall see in Chapter X, they have led to frequent discord and dissension.

CHAPTER VII

THE PROBLEM OF DEAD WORK AND DEDUCTIONS

The determination of wage rates for the miners is not complete when the tonnage and machine rates for each mine are established. The problem of payment for " dead work " and " deficiencies " and the problem of charges (deductions) made by the employer for materials and services furnished to the miner are still to be considered. Although in many ways their connection with the wage problem is similar and the method of settling the questions involved is essentially the same, the two problems are sufficiently different to warrant separate consideration.

I. DEAD WORK

The dead-work problem is much more important and complex than the problem of deductions. It owes its existence to the fact that the miner always spends part of his time in work that is not directly productive of coal, that is, in dead work, and that the proportion of his time so spent necessarily varies with the conditions under which he works. It is obviously unfair to the miner and clearly impossible to thrust on him the entire burden of bearing the

risk of adverse natural conditions. Accordingly, for many kinds of dead work he receives extra payment.

To understand the problems involved in dead-work rates it is necessary to consider the natural conditions in a mine that affect the miners' daily output. These conditions, though almost infinitely varied, may for convenience be considered in three main groups: the size and layout of the working place; the physical conditions as to air and dampness under which the work is to be done; and the quality of the coal—its thickness and its freedom from impurities.

Variation Due to Size and Layout.—A number of factors connected with the size and layout of the working place affect the miners' output of coal. The normal working place of a mine is known as a "room."[1] The normal width of a room is 20 feet but may range from 12 up to 40 feet. Now, the width of a room affects the amount of coal that can be produced with a given amount of effort; the narrower rooms have a smaller mining area and are more difficult to work in. In rooms more than 20 to 24 feet wide the distance from the side walls to the mine cars makes it impossible to shovel new-cut coal directly into the cars and it is necessary to shovel it into a pile midway between the wall and the track and then to shovel it again from this pile into the cars. Hence, in connection with the fixing of wage rates, there is or should be the problem of defining the standard room and of fixing additional compensation for rooms over or under the standard width.

[1] See p. 58.

Of somewhat similar character is the position of the track in the room. Its customary position is along the median line of the room, and when it is in this position the miner can put the coal in the cars with the minimum of handling. Where the track is put along one side of the room the coal at the opposite side of the face must be shoveled twice.

Finally, the floor of a room is usually level or nearly so, but at times it is necessary to drive the room up or down hill. This means an increase in the work of pushing the cars and in the time spent by the miner on this work instead of in the direct production of coal. James D. Morgan,[1] president of the Wyoming district of the United Mine Workers, has described the method of handling cars where the incline was particularly steep:

"Snubbing ropes" are used in seams where the pitch is too heavy for the cars to be brought to the entry with the use of sprags. The rope used is a heavy hemp affair, clumsy and not easy to handle. When a car is loaded and ready to be dropped to the entry, it requires the time of both men employed in the room to lower the car safely; one man to handle the rope and to lower the car, and the other to ride the car down and properly sprag or block it in the room neck, remove the rope and leave the car ready for the driver to pick same up in gathering his trip. * * *

Each time a length of track is laid as the room advances, the old snubbing post must be removed and a new one put farther up the room. This post must be set deep in the bottom and squared so that it can not be pulled out or turn around as the rope is used in lowering the car.

[1] Morgan, J. D., Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 10, p. 466, 1920.

Where the slope is too steep to handle cars in this manner, still more elaborate methods must be used. Mr. Morgan continued:[1]

> The "McGintys" are used on pitches too heavy for the use of snubbing ropes to raise and lower the cars to and from the face of the rooms. Briefly, it is a system of drums around which works a steel cable, the rope being controlled by hand around the drums and a brake operated by a lever. * * *
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> The McGintys are generally located between two rooms, in the crosscut nearest the face, the loaded car in one room pulling the empty car up to the other. One man operates the McGinty, another must go down with the car to the entry and block the load and usually must go down and hang the empty on the rope. * * *
>
> The general disadvantages are somewhat the same as in the use of snubbing ropes. It takes considerable time for each car of all the men employed in the rooms using McGintys, and cuts down the time they can spend on the work they do get paid for.

While there are variations within the rooms that need to be taken into account in fixing wages, there is a more marked difference between a room and an entry or crosscut. Entries and crosscuts [2] are passages or air courses; and the work of driving them is really developmental. On the other hand, the actual work required of those driving an entry is the same kind as the work in a room except that all entries and air courses are narrower than a room and hence yield less coal per unit of effort. The difference is so marked that it is customary to make the miner a supplemental payment known as " yardage "

[1] Idem.

[2] See p. 16.

for each yard of distance driven. Fixing the amount of this yardage for entries of varying widths and for crosscuts and for all narrow places is an important part of the problem of payment for dead work.

Variations Due to Physical Conditions.—The second group of conditions that affect the daily output of the miner has to do with the wetness or dryness of the mine. This is not at present as important as formerly, for during the thirty years of collective bargaining in the Central Competitive Field, the unions have pretty well established the principle that it is the duty of the employer to keep the mine "reasonably" dry. Even so, conditions and standards of reasonableness vary. Circumstances which he can not control occasionally make it impossible for the employer to keep the place up to the general standard, and it is necessary to fix payment for the miner who has to take water out of his own working place or who is obliged to work in a wet place.

Variations Due to Quality of Coal.—The quality of the coal and its freedom from impurities is a matter of great importance to the miner. It is always easier to mine coal from thick seams, running regularly and free from impurities. The average thickness of the seam is considered in fixing the tonnage rate for the mine,[1] but in places the thickness unexpectedly changes and in these, when no provision has been made in the tonnage rate, the so-called low coal is handled as a "deficiency."

The number of impurities which may be found in coal veins is legion, and it would take a technical

[1] See p. 97.

treatise to enumerate and define them all. They are of two main kinds—those that result from the irregular stratification of the earth and those that overlie a coal seam or are mixed with the coal. In the first group, "rolls," "horsebacks," and "clay veins" are the most important and most common. They are strata of rock and other foreign substances of wave-like formation, running into the coal seam either up from the bottom or down from the top. They mean to the miner not only a reduction in the quantity of coal along the face of his room, but also extra work. Rolls and horsebacks are harder than the coal and make more difficult the work of undercutting, whether by pick or by machine. In addition to this, the foreign substance of which the roll or horseback is composed must be thrown to one side, i.e., *gobbed*. The pick miner thus has his daily output reduced by the extra work required to undercut the horseback and to gob the impurities. In machine mining, the cutter's production is reduced by undercutting and the loader's by gobbing.

Impurities that lie over or under the coal or are mixed with it include slate, bands of rock, sulphur bands, "bone coal," "cash," rock, soapstone, dirt, etc. When they do not form separate strata and are mixed with the coal, it is impossible to separate them and get down clean coal. As the miner's tonnage rate calls for clean coal and he is required to load clean coal only, this means that he must carefully pick out the impurities and put them in the gob or pile of refuse. When the impurities lie over the coal the difficulties for the miner are a little

different. They do not always necessarily come down with the coal and, if the room is carefully timbered, may stay in the roof, in which case the extra work involved is the extra timbering that is required for the protection of an abnormally bad roof. In other cases the slate, cash, or what not must be shot down with the coal and then broken up, separated from the coal, and gobbed.

How serious a matter this may be for the daily output of the miner is shown by the testimony of Mr. Philip Murray,[1] vice-president of the United Mine Workers, who said that it meant that in western Pennsylvania one-half day out of every two days must on the average be spent in handling the slate. In other words, where this slate is found, approximately one-fourth of the worker's time is spent in work that is not reflected in his daily output of coal. Whether he shall have payment for this work and what payment he shall have is one aspect of the problem of dead-work payment.

Most dead-work problems are handled by purely local conferences. The Interstate Joint Conference limits its actions as to dead work and yardage to fixing a uniform rate of increase to be applied to existing rates. The Bituminous Coal Commission of 1920 limited its award in the same way, although it took testimony and heard evidence on the whole question of dead work and yardage.

In general the failure of the central machinery to deal comprehensively with these problems means

[1] Murray, Philip, Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. —, p. 124, Jan. 13, 1920.

that they are handled by purely local agreements reached by conferences of local operators and local officials of the union. Usually the union, in addition to applying any change agreed to by the Interstate Conference, has been in theory free to demand that a rate be fixed for work not hitherto paid for, or that a scale be established for work formerly paid for under a system of individual bargaining between the miner and his foreman. At times, however, this freedom has been restricted by a clause in the Interstate Agreement providing that nothing should be done in adjustment of local inequalities that would increase the cost to the operator or decrease the earnings of the miner. Even without this restrictive clause, actual changes in local practices with reference to dead-work payments have been stubbornly resisted; and the present inequalities between districts date back for the most part to the days preceding the formation of the interstate movement and reflect the relative bargaining strength of the local unions at that time. This fact was explicitly brought out by Mr. White,[1] president of the United Mine Workers, in 1912 at the Interstate Joint Conference of that year in connection with a demand that all dead work be paid for. He said: "In some places in the East the miners are compelled to carry 12 inches of draw slate for nothing. Like many other evils, this has been fastened upon the miners by

[1] White, J. P., Proceedings of Interstate Joint Conference Coal Operators and Coal Miners, western Pennsylvania, Ohio, Indiana, and Illinois, 1912.

reason of no organization in the early days, but it has stayed with them."

The extent to which the local contract actually settles the rate of payment for dead work itself varies. It may provide for a fixed scale, either by the piece (so much per yard or so much per ton added to the regular tonnage) or by a scale based on the time involved (usually an hourly rate equal to the maximum rate for inside day labor). Dead work for which a scale is fixed is usually of a type that is comparatively common in the district, as for example, narrow work, removing rolls or horsebacks, bailing water, or setting crossbars. A less definite and probably a more common provision is that certain work shall be paid for, the price to be agreed upon with the mine foreman. Here, too, variations occur. The basis may be prescribed by the contract (for example, it may be "based on the price of inside day labor"), but in general nothing is prescribed to guide the individuals who fix the price. Again, the price may be fixed by the individual miner and the foreman, with or without provision for recourse to the pit committee; or occasionally the pit committee must be consulted before the price is fixed. This system of individual bargaining affords to the foreman many opportunities for favoritism and it tends to put a premium on the gentle art of begging.[1]

Another method of dealing with the dead-work problem is found in a provision that the work shall

[1] Archbald, Hugh, The Four Hour Day in Coal, p. 51, New York, 1922.

be done by "company men" or day labor, and that the miner shall be given an "average place" in the mine until his own place is once more in normal condition. This provision is not very common and is found mainly in connection with the cleaning up of falls of roof or with the removal of water.

Finally, the contract may merely state that existing customs shall be continued. Most local contracts carry some such clause and payment for dead work is in many cases established under it. Just how the custom became established is not always clear; it may have become customary because of a series of individual payments that had been made; it may have been established through an unwritten understanding with the union; and it may rest on the decision of an arbitrator or of the joint machinery for the adjustment of disputes. In any case the rate of payment is somewhat less clearly established and less well known to both sides than the rates specified in the contract itself. The confusion comes out clearly in the following passage between Mr. Stewart, president of the Indiana district of the United Mine Workers, and Mr. Penna, Indiana operator at the hearings before the Bituminous Coal Commission of 1920.[1]

Mr. Penna: Is it not true that in the No. 4 vein of coal that we have a scale or schedule that all (bone coal) above 6 inches should be paid for at 3 cents an inch or is it 5 cents?

[1] Transcript of Proceedings, U. S. Bituminous Coal Commission, vol. 2, p. 105, 1920.

Mr. Stewart: Three cents an inch in rooms. There is no scale.

Mr. Penna: Have we not always observed that contract and have not our disagreements been due to your attempts to revise that?

Mr. Stewart: There was an arbitration case in Indiana years ago at which some understanding was reached.

Mr. Penna: That was No. 3, was it not?

Mr. Stewart: That was No. 3.

Mr. Penna: I was talking about No. 4.

Mr. Stewart: There was some understanding in some localities as to 3 cents per inch in rooms and 5 cents in entries, I believe.

Mr. Penna: That is right.

Mr. Stewart: But no contract; no more than local settlements.

Mr. Penna: It was an arbitration and the findings written.

Mr. Stewart: It is not a contract. I have no decision in my office to that effect.

The system of establishing payment for dead work by local bargaining results in wide differences between districts. The differences extend to the kind of work paid for, the method of payment, and the rates established and their relations to the tonnage rates. It is quite impossible to show within reasonable limits the extent of these variations, but a few examples taken from the mass of testimony offered to the commission in 1920, the proceedings of joint conferences, and the contracts themselves will

indicate what is to be found. As already stated,[1] these payments concern themselves with impurities overlying coal seams, with horsebacks, rolls, etc., and with narrow work.

Most striking perhaps is the question of compensation for removal of slate overlying the coal. In eastern Ohio and western Pennsylvania, an average thickness of 10 inches of slate overlies the coal, but the miner gets no additional compensation for removing it unless it is 12 inches or more in thickness. In other districts where the overlying slate is less common, it is customary to pay the miner either for all slate taken down or at any rate for slate less than 12 inches thick. In the Coshocton, Crooksville, and Massillon districts of Ohio the miner is paid a set price per ton for every 3 inches of slate or dirt above the coal, with no provision for a minimum that he is required to handle without extra compensation. In Indiana the contract says nothing about payment for slate, but by local customs in force in the veins where slate is found the miner is paid a fixed price per inch. In all the Illinois districts except one the men are paid for all slate handled. In the Pana district, however, there is a rule in some mines that men must work one hour with the slate, and in other mines they must move 4 inches of slate or clod before compensation begins.[2] Mr. Farrington,[3] president of the

[1] See p. 120.

[2] Farrington, Frank, Transcript of Proceedings: U. S. Bituminous Coal Commission, p. 257, Jan. 14, 1920.

[3] Idem, vol. 5, p. 190, 1920.

Illinois miners, in explaining the injustice in the situation as the miners view it, says:

> This arrangement, which compels the miners to move and handle slate, clod, or dirt, is one that has been working an injustice to the miners and is a source of continuous trouble, because of the disagreements between the miners and the mine management on account of the thickness of the slate or over the time it will take to remove same. In many instances advantage is taken; discrimination is sometimes practiced by being liberal with some miners and arbitrary with others in the matter of paying for work done.

All impurities that have the same effect on mining work are not treated alike with reference to payment.— For example, in the Hocking Valley district of Ohio payment is provided for removing slate but not for bone coal. At the time the Bituminous Coal Commission was hearing the evidence of the miners, a dispute was on at one mine as to whether the particular impurities were slate or bone coal, and on the determination of that technical point hinged the question as to whether payment should be made for handling this impurity.[1]

Methods of measuring and paying for horsebacks, rolls, and clay veins also vary from district to district, but no district within the Central Competitive Field is without some provision for payment for these deficiencies. In most districts of Ohio and in the first and sixth subdistrict of Illinois, the payment is left to individual bargaining with the assistance

[1] Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 3, p. 122, 1920.

of the mine committee, while in other districts a scale has been worked out. The Leetonia, Ohio, contract provides that the payment shall be $4.44 per foot in thickness for every 7 yards. Tuscarawas and Sandy Valley provide for 45 cents per yard for the first 6 inches in thickness, and 22½ cents per yard extra for every additional 3 inches. Springfield, Ill., provides for a payment of $4.75 per foot in thickness for any width not over 12 feet. The Indiana contract provides that rolls are not to be paid for unless they are over 6 inches thick and then they are paid for at 6.8 cents per cubic foot.

The payment for narrow work also shows marked variations, although it is to some extent more standardized than payment for other kinds of deadwork. In pick mining at least the method of payment is always the same, a definite price per yard driven; and this rate is always put in the contract. The variation in the rates set is striking, as shown in the following rates per yard for entries of the same width in districts which pay the regular tonnage rate of $1.08:

Indiana	$3.00
Danville, Ill.	1.90
Springfield, Ill.	4.15
Chicago and Alton subdistricts, Ill.	3.22

Similarly in those Ohio subdistricts that have the same tonnage rates, the yardage rate for entries of the same width range from $2.035 to $3.82. Even within the subdistricts the yardage rates occasionally vary from mine to mine. Thus, according to the testimony of the Illinois scale committee: "Within

the Pana subdistrict itself there are six different yardage rates; five of them affect the same seam of coal with the same tonnage prices, same natural conditions, and same system of work."[1] Still other significant variations exist in the methods of paying for narrow work. In some districts the rates fixed apply to all entries and make no provision for entries driven narrower than standard; in other districts different rates are set for entries of different widths; and in others, rates differ between different kinds of narrow work—between entries and crosscuts, for example, and even between crosscuts opening from rooms and those opening from entries.

Again, " room turning " (that is, the cutting of the room neck and the widening of the neck into a room) may be paid for by the room, or on a yardage basis that takes cognizance of the length of the neck. This may mean a considerable difference in the rate paid for driving the same distance in a " room-neck " and in an entry. In Indiana, for example, according to Mr. Stewart,[2] district president of the miners, the rate prior to 1920 for driving entries was $2.50 per yard, making the payment for 12 feet $10, and for driving room-necks 12 feet long was $6.04, or $3.96 less. " We can not understand," he added, " why it is not worth just as much to drive 12 feet of yardage in room necks as it is 12 feet in an entry."

Minor inequalities in dead-work or yardage pay-

[1] Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 5, p. 189, 1920.

[2] Stewart, E., Transcript of Proceedings: U. S. Bituminous Coal Commission, pp. 268 ff., 1920.

ments could be cited almost at will. A single further case brought before the U. S. Bituminous Coal Commission in 1920 will suffice to illustrate the haphazard character and the lack of any consistent principle underlying such payments. In general, it is customary to consider coal below a certain height as a deficiency and to make extra payments for its mining.[1] In Indiana, on the contrary, the loader is actually paid 2 cents a ton less when the coal is under 4 feet 6 inches in height, than he is when it is above this height. This discrepancy is the result of the report of a commission made up of miners and operators which was appointed some years ago to adjust rate inequalities which prevailed in the State. In adjusting these rates the commission felt that the machine runners should get an increase of 2 cents per ton. Yet the commission did not feel there should be any increase in the mining costs of the thinner seams. Accordingly it was necessary to find a way whereby an advance could be given to the machine runner without at the same time increasing the cost of mining. This could be done by advancing the rate for machine runners at the expense of other workers. The commission brought back a report, therefore, which recommended that machine runners in seams of less than normal thickness should be given 2 cents more than the standard rate, and that the loaders in the thinner seams should get 2 cents less than the standard rate.[2] This recommen-

[1] See p. 96.

[2] We have a peculiar situation in our State with reference to machine mining where the coal gets below an ordinary thickness. We

dation was accepted and the discrepancy has never been rectified.

II. DEDUCTIONS

The employer is allowed to make three kinds of deductions from the gross earnings of the miners: (1) occupational charges that arise from the fact that the miner is still somewhat in the position of the mediæval craftsman who is supposed to furnish his own tools and working equipment and who is usually charged with their cost when the employer has taken over the duty of furnishing them; (2) penalties for various types of misconduct and inefficiency; (3) domestic charges which arise from the fact that the employer, in many communities, stands in a paternalistic or semipaternalistic relation to many of his employees. The relation of this third class of deductions to the determination of wage rates is less direct than that of the others, but so long as these charges are left to the arbitrary determination of the employer they can clearly be used to offset differences or changes in wage rates. Hence they, too, enter into the problem of wage determination.

appointed a commission composed of two representatives of the miners and two representatives of the coal operators and canvassed the entire State. The commission brought back a report and the report was accepted. And one of its provisions was that where a section of the mine was as low as 4 feet 6 inches in thickness the price for loading coal would be 2 cents per ton less than where the coal was of normal thickness. But the machine runner gets 2 cents per ton more. In other words, the machine runner is compensated at the expense of the loader. *Penna, P. H., Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 2, p. 96, 1920.*

Theoretically the relation of deductions and of dead work to the equalization of earnings and to competitive equality is much the same. That is, the net earnings of miners in different districts could hardly be equalized if the miner in one district lost a larger proportion of his gross earnings as deductions than his fellow worker in an adjoining district. And if any deductions are to be allowed it is difficult to see how they could bear the same relation to gross earnings in the different districts. This is particularly true of deductions for powder, as the amount required to shoot down a given amount of coal varies widely from district to district.

The system of deductions likewise enters into the establishment of competitive equality, for the operator who can make a greater profit or suffer less loss from the sale of powder to his employees than does his rival is in a better competitive position. All this is true in theory but actually the deductions form so small a proportion of the total wages bill that their importance in this respect is not very great. They are probably more important in their relation to miners' earnings than to competitive equality; but probably their greatest importance lies in the fact that they often result in grievances and a sense of unfair treatment in the minds of the miners.

The methods by which the character and the amount of the deductions are determined are essentially the same as those used in regard to dead work. The Interstate Joint Conference has indeed done nothing about deductions. The Bituminous Coal

Commission of 1920 did a little more: it laid down maximum charges in certain cases and stated the principles involved in others. But it left the actual determination of the charges where it was before; that is, to local conferences of operators and union officials. Hence, in spite of the work of the commission differences between districts are still found. A few of the more important are discussed below:

1. Occupational Charges.—In the group of occupational charges considerable uniformity prevails as to the services for which deductions are allowed. Charges for powder and other explosives and for sharpening the miner's tools, or "blacksmithing," are made in all mines. A less general charge is that for safety lamps, where the electric safety lamp is furnished by the operators. In the Pittsburgh district, for example, each miner is charged 5 cents per shift to cover the maintenance cost of his lamp. The ground for this deduction is that the miner has always furnished his own lamp, that the tonnage rate was based on that assumption, and that hence when the operator took over the duty of furnishing lamps he was entitled to charge for them. Whether the charge made is greater than the cost of the old lamps is a subject of dispute, but in so far as it is greater the miner is bearing the cost of increased safety.

While charges for blacksmithing and powder are always made, the variations in their amount and the lack of guiding principles were sufficiently great to cause the Bituminous Coal Commission of 1920 to attempt to regulate them. It learned that in cer-

tain mines in Indiana, for example, the deductions for blacksmithing were between $500 and $1,000 more than the wages paid to all the blacksmiths and blacksmiths' helpers employed.[1] That means that the miners paid the entire wages of the blacksmiths, who not only sharpened their tools but also did other company work, and gave the operators something over $500 in addition. The commission accordingly fixed a maximum charge for blacksmithing, namely, three-fourths of 1 per cent of the gross earnings of the miners. Since that time the operators have tended to charge the maximum allowed by the commission. In Illinois, however, the charge is somewhat less—six-tenths of a cent per ton, the tonnage price ranging from $1.04 to $1.68. In Indiana a deduction for smithing is also made from the earnings of the machine miner, although in most places no attempt is made to insist that the machine miner should be financially responsible for the maintenance of his machine.

The charges for powder include both the charge for black powder and that for the newer and more expensive "permissible explosives," which are preferred both for their greater efficiency and their greater safety. The relation of the charges to the cost of the powder is not always clear, but it is apparent that it is not very close. In 1920 the miners in Pennsylvania were paying $4.50 for the same powder that the Illinois miners got for $2.45.[2] The

[1] Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 2, p. 106, 1920.

[2] Ibid., vol. 1, p. 257, 1920.

Bituminous Coal Commission decided that the operators should not make a profit on powder and laid down the principle that the charge should be the cost to the operators, including the cost of handling, transportation, and insurance. The application of this principle was left to local determination, and it is clear that the prices fixed in some places reflected local bargaining strength rather than any scientifically determined cost. The Illinois contract carried under the clause fixing the price of powder the following significant note: "The operators accept these prices for explosives under protest, as these prices are below what they are entitled to under the award of the Bituminous Coal Commission."

2. Penalties.—Deductions of the second type, those the operator makes to penalize the miner, also show considerable variation. The most common offenses for which fines are imposed are the loading of dirty coal and the stopping of a mine in violation of a contract. In all districts, since the adoption of the mine-run basis of payment, the operator has been allowed to "dock" the miners for loading dirty coal. But the definition of "dirty" varies from one district to the next, and the penalties show no less variation. In Illinois, for example, no attempt is made to define the amount of impurities that will cause the coal to be considered dirty; in Hocking Valley, Ohio, 100 pounds of impurities per ton must be loaded before the coal is considered dirty; and in Lawrence County, Ohio, dockage begins with 50 pounds of impurities. Similarly in Illinois the penalty is 50 cents for the first offense in any calendar

month, $1.00 for the second offense in the same month and $2.00 or a suspension of three days for the third or subsequent offense. In Lawrence County, Ohio, the penalty is 50 pounds of good coal for the first offense, 200 for the second offense, and 300 pounds for the third offense in the same day.

In all districts a penalty is provided for the stoppage of a mine in violation of a contract. In general this penalty is the same, $1.00 per day per man; but in Illinois it is $3.00 for the first day and $1.00 for each succeeding day.

Other offenses for which a miner may be " docked " vary from district to district and are on the whole less important. Interfering with the dock boss is such an offense in some districts. Perhaps under this head should also be included demanding pay before pay day. In some districts, Indiana, for example, it is customary to penalize the man who makes such a request by discounting the amount due him, while in others, Illinois in particular, such discounting is expressly forbidden.

3. Domestic Charges.—Little needs to be said at this point concerning the domestic charges for which the employer makes deductions from the miners' earnings. Since most miners live in houses owned by their employers and obtain their household coal from the mine in which they work, the most important charges are those for rent and for household coal. As the nature of these varies from district to district, it is impossible to compare the charges made by the employer with any approach to accuracy. The miner usually attempts with greater or less suc-

cess to prevent any of his increase in wages being absorbed by an increase in these charges. Consequently a common provision in the wage contract is that there shall be no increase in the price of household coal or in rent during the life of the contract. Frequently, too, the prices in the old contract are renewed from contract to contract. This means that no consistent relation obtains between the price of those services to the miner and their cost to the operator over a period of years. The Coal Commission of 1920 considered that the unions had gone too far along these lines and provided that the price of household coal might be increased by the same percentage as wages were increased under the award of the commission.

CHAPTER VIII

HOW DAY RATES ARE MADE

Wage making in the bituminous coal fields has now been described under three broad heads: first, the fixing by the Interstate Joint Conference of the "pick rates" for the four basing points in the Central Competitive Field; second, the fixing by district and subdistrict conferences of three country-wide differentials—the freight, the thin vein, and the machine; third, allowances *to* the miners for certain forms of unprofitable and difficult but necessary work; and deductions *from* the miners for tools and equipment furnished, for misconduct and inefficiency, and for domestic supplies (houses, coal, etc.).

In the present chapter the discussion shifts to another class of mine workers, the "company men," all of whom are now paid on a daily or monthly wage-rate basis, as distinguished from the actual miners, who are paid on a tonnage basis. Company men comprise two groups, one employed above ground and called outside workers, and one employed down in the mine and called inside workers. The latter are made up of transportation men (motormen, mule drivers, and the like) and of men who keep the mine in condition (for example, pumpmen, masons, road cleaners, and timbermen).

I. INSIDE COMPANY MEN'S WAGES

Inside men may be said broadly to comprise from one-third to one-fourth of all the men who work underground;[1] that is to say, there are usually two to three times as many miners at work underground as there are company men. But this ratio again is subject to wide variations, depending on local conditions and usages. One mine in which most of the work of laying track in the rooms, taking up floors, timbering, etc., is done by the miners themselves will have relatively few company men underground; another in which much of this work is done by company men may have as many inside workers as it has miners.[2] An accurate estimate of the number of the inside workers as differentiated from outside workers is impossible, but figures for the entire country show that all the company men, both inside and outside, comprised 48.9 per cent of the workers employed in coal mining in December, 1919.[3]

Because of the nature of their work, inside company men are paid on a daily wage-rate basis. The work done lends itself much more easily to measurement and standardization than does mining as such. The conditions under which the men work are more

[1] Archbald, Hugh, The Four Hour Day in Coal, p. 28, 1922.

[2] Ogle, A. M., Testimony, Investigation of Wages and Working Conditions in the Coal-Mining Industry: Hearings before Committee on Labor, House of Representatives, 67th Cong., 2d sess., p. 167, 1922.

[3] Coal: Mines and Quarries, Fourteenth Census United States, p. 31, 1919.

uniform. Laying track, for instance, although subject to variations here and there, is nevertheless sufficiently the same in the different mines to justify very nearly the same rate for different centers. This is not true of the miner's work, in which conditions vary from place to place. Furthermore, the company men can be more easily supervised. Most of them work in places and under conditions where they can be put under the direct supervision of a foreman. They are not, like the miners, scattered throughout the mine in places infrequently reached by others than the mule driver, nor do they spend all of their time in one place. One can more easily know whether these men are working and how efficiently they have performed their task. Once a job has been completed they are expected to report back to the foreman for an assignment to another job. This is particularly true of building brattices, coupling cars, driving mules, repairing equipment, operating cages, and other similar work. The result is that it has been found practicable to adjust the rates for company men on a daily basis rather than on a piece basis.

The practice of paying company men on a time basis was in effect for a good many years prior to the inauguration of the Interstate Joint Conference movement and has continued down to the present. The Interstate Conferences of the eighties made no provision for the rates to be paid to company men but left their determination entirely to the district and subdistrict conferences. At these conferences the existing rates for those company men who were

members of the union were usually changed on a percentage basis, the rate of change being proportionate to the change in the pick rates as fixed by the Interstate Conference. There was, however, no fixed relation between the day rates paid in the different districts and subdistricts and they varied considerably throughout the Central Competitive Field. Thus in Ohio, in 1889, tracklayers' rates ranged from $1.35 in Jackson County to $1.90 in Tuscarawas County and, as shown in the following table, rates for other types of day labor were similarly varied.

DAY RATES PAID IN OHIO COUNTIES IN MAY, 1889 *

	Mahoning	Medina	Tuscarawas	Belmont	Jackson	Stark	Vinton	Columbiana
Cagers	.....	.....	.....	.....	$1.35	$1.65	$1.65	.....
Tracklayers	.....	$1.87	$1.90	.....	1.35	1.65	1.375	$1.65
Drivers	$1.67	1.87	1.70	$1.50	1.35	1.82	1.50	1.65
Dumpers	.....	.....	1.40	.....	1.28	1.50	1.15	.....
Trimmers	.....	.....	1.40	1.25	1.28	1.65	1.37	.....
Trappers	.....	.50	.65	.....	.50	.60	.50	.....

* Evans, Cris, History of the United Mine Workers, vol. 1, p. 460, (1920?).

Unified rates for all inside labor were first established in 1898. Before then, variations existed in all districts and apparently no attempt was made to adjust day rates on any well-defined basis. With the reestablishment of the Interstate Joint Conference in 1898 it was the consensus of opinion that something ought to be done in regard to the rate for day

laborers. Pick rates were determined for the basing points at this conference, but no agreement for company men was reached. However, the representatives of the United Mine Workers most effectively presented their demand for uniformity as the basis of competitive equality [1] and secured from the operators the first important concession to this demand. For, although no day rates were agreed to, the union succeeded in having incorporated into the wage agreement of 1898 a provision for an eight-hour work-day with eight hours pay for all the districts represented at the conference and a further provision "*that uniform wages for day labor shall be paid the different classes of labor in the fields named.*"[2]

The failure of this conference, which met in January, to agree as to the rates to be paid for day labor was, however, not final. The scale committee, before adjourning, adopted a resolution to the effect that a committee of operators and miners meet in the following March "to formulate a uniform day wage scale." This committee met on March 8 and agreed on a scale of wages and conditions to govern all inside laborers, fixing a rate of $1.75 per day for most classes, the only exceptions being tracklayers, timbermen, pipemen, and trappers. Tracklayers and timbermen were allowed $1.90 per day, pipemen $1.85, and trappers 75 cents.[3] This scale was obtained by taking the average of the wages

[1] See p. 77.

[2] First Joint Conference Contract, sec. 5, 1898.

[3] For the complete scale for inside day labor see Appendix A, p. 293.

paid in all of the competitive districts and reducing it to an eight-hour basis.

The practice of paying uniform inside day rates for all districts in the Central Competitive Field has been continued to the present time. Changes in these rates are made on a percentage basis, and the amount of change is usually proportionate to the change made in pick rates. Sometimes, however, changes have been made in the rates paid for the same type of inside labor at particular points. The rate for motormen in Indiana, for example, has for many years been higher than elsewhere. This difference is the result of an agreement reached between the operators and miners of the district whereby these men were reclassified and certain helpers eliminated with an accompanying increased rate for the motormen. In the extreme southern part of Ohio, on the other hand, the rates for inside day labor run from 30 to 60 cents a day less than is paid in other parts of the State. This difference, too, is the result of action taken some twenty-odd years ago, when an attempt was made to put the operators of the southern part of the State on an equal competitive basis with those in Hocking Valley. It was recognized that the southern Ohio operators could not pay the Hocking Valley day wage and still compete effectively with other operators, and this concession was made by the union officials.[1]

[1] Moore, John, Testimony, Investigation of Wages and Working Conditions in the Coal-Mining Industry: Hearings before Committee on Labor, House of Representatives, 67th Congress, 2nd sess., p. 119, 1922.

At present $7.50 is the standard inside rate for an eight-hour day throughout most of the Central Competitive Field. Time and one-half is paid for overtime and double pay is given for Sundays and legal holidays.[1] This price is paid to tracklayers, drivers, cagers, trip riders, snappers, timbermen, wiremen, and most of the motormen. Helpers of one sort or another usually get $7.25 and boy trappers $4.00. It is of interest to note that many of the contracts provide higher rates for those trappers who happen to be " old " men. All other inside company labor for which no specific task is mentioned receive $7.25, except those in Indiana, whose rate is $7.50.

II. OUTSIDE MEN'S WAGES

The rates discussed above apply only to inside laborers. No mention has been made of rates for outside workers. An attempt was made by the scale committee of 1898 to formulate a scale for these latter but failed owing to " conditions over which [they] had no control " or, in other words, to the fact that at that time the engineers, firemen, and blacksmiths connected with many of the mines were members of their own craft unions and were not affiliated with the United Mine Workers. By 1905, however, these workers had pretty generally come under the control of the United Mine Workers.[2] Yet it was not until 1912 that the union succeeded in having the

[1] Overtime and Sunday provisions were first incorporated in the wage agreement of 1923.

[2] Savage, M. D., Industrial Unionism in America, p. 90, New York, 1922.

Interstate Joint Conference take cognizance of this fact—and even then, only to the extent of having the wage contract specify the amount of change to be made in the existing rates. No provisions were made for uniformity in wage rates at the different basing points or elsewhere. Indeed, it was assumed that variations in outside wage rates, like variations in dead-work rates, were to be continued; and these rates were treated in the same manner as were dead-work rates. Since 1912 all Central Competitive Field contracts have specifically used the phrase *all day labor* instead of *inside day labor*, the phrase formerly used; and now changes in rates for outside labor are the equivalent of those made for inside labor.

The inability to bring about uniform rates for outside workers is in large part due to the lack of complete control by the union. Even today engineers, firemen, electricians, and machinists working at certain mines are not members of the United Mine Workers of America;[1] and this has enabled the operators to forestall the attempts of the union to subject outside workers to the general provisions of the wage contract and particularly to those provisions that have to do with working conditions. Consequently both the rules and the wage rates which apply to outside workers vary from place to place. In Illinois, for example, no hoisting engineer is subject to the authority or supervision of the local union or pit committee; and any dispute between

[1] Official Mining-Scale Agreement, District No. 6 (Ohio), subdistrict 5, rule 28, p. 190, 1922.

an engineer and his employer must be taken up by the operator and the district board of the union as contrasted with the foreman and the pit committee, who handle the disputes of the other laborers.[1] In western Pennsylvania a provision in the contract similar to that in Illinois specifies that monthly men, teamsters, electricians, stable bosses, and engineers are not covered by the scale.[2]

Very much the same state of affairs exists in Indiana. Blacksmiths work a nine-hour and inside men an eight-hour day. Engineers, though technically on an eight-hour basis, must, "outside of regular hours, hoist and lower the men, and in addition . . . perform all the duties which necessarily and usually pertain and belong to an engineer's position;" and they receive no extra pay for such work. As in Pennsylvania and Illinois, the engineers in Indiana are not to be subjected to "the interference or dictates of the mine committee or the local unions."

The relation of the United Mine Workers to the outside workers in Ohio is more anomalous than in the other States of the Central Competitive Field. In several subdistricts many of the engineers, fire-

[1] Agreement by and between the Illinois Coal Operators' Association, the Coal Operators' Association of the Fifth and Ninth Districts of Illinois, and the Central Illinois Coal Operators' Association and the United Mine Workers of America, District No. 12, p. 74, 1922.

[2] "It is understood that the mine committee shall not interfere with outside men; but if outside men have a grievance under the contract it shall be taken up directly with the district officers of the United Mine Workers of America and the representatives of the coal company."—*General Contract for the Pittsburgh district, p. 16, 1922.*

men, electricians, and machinists are not affiliated with the United Mine Workers of America. Moreover, the wage contract in subdistrict 5 (Belmont, Harrison, and Jefferson counties) specifically states that the conditions, employment, duties, hours of labor, and union membership of these crafts which existed prior to September 1, 1903—when the National Brotherhood of Coal Hoisting Engineers, an independent craft union, was expelled from the American Federation of Labor for refusing to affiliate with the United Mine Workers—shall "continue and remain in force during the life of the contract." Further provisions state that should the duties of these crafts be interfered with by any union committee or local officer, such committee or officer shall be subject to suspension or dismissal by the operator, and that those engineers, firemen, electricians, or machinists who are not members of the United Mine Workers shall not be compelled to join.[1]

This diversity in the status of the outside workers results in a considerable variation in the wage rates paid to this class of labor. The Illinois contract makes little attempt to equalize the rates for outside labor and specifies that "the scale of wages now being paid outside labor at the various mines in this State shall be the wage scale for that class of labor during the life of the agreement, with a minimum of $6.86 per day. Firemen and stokers shall receive $7.25." A special agreement governing

[1] Official Mining Scale Agreement, District No. 6 (Ohio), p. 190, 1922.

the wages and conditions of coal-hoisting engineers provides a rate ranging from $218.53 to $241.88 per month with a nine-hour day, the amount to be paid depending on the rating of the engineer and the daily capacity of the mine at which he works.[1]

The rate set for those outside laborers who are subject to the wage contract of western Pennsylvania runs from $6.60 up, while in Indiana [2] a flat rate of $6.85 for outside day men is specified. An exception is made for blacksmiths and firemen, the former working nine hours per day and doing "any other labor required of them by the mine management" at a rate of $7.92,[3] and the latter receiving $7.356 for a ten-hour day. The Ohio rates on the other hand run from $4.86 to $7.27, the rate set varying both with the type of work to be done and the conditions existing in the individual subdistricts.

Although these rates for outside workers in the Central Competitive Field show lack of uniform relationship, their variations, when compared with those in the districts outside of that field are rather slight and unimportant. The rates paid not only to outside workers but also to inside workers, machine miners, and pick miners in the different outlying districts have been built up entirely independently of one another. To be sure, the rates set for the different points within the individual districts comprising the Central Competitive Field

[1] For a complete schedule of rates for outside workers, see Appendix B, p. 293.

[2] Contract and Wage Schedules, District No. 11 (Indiana), p. 21, 1922–1924.

[3] Idem.

are the result of local conditions; nevertheless, some approximation to a fairly definite relationship does exist between these rates and the rates fixed at the basing points. In the outlying districts, however, little attempt has ever been made to bring the individual wage rates into any unified system. Here the cost of living in the individual districts, competition with fuel oil and hydroelectric power, and the sheer ability of either side to get what it can rather than competitive equality or even uniformity with the Central Competitive Field have led to an inchoate wage structure. Accordingly, it should be worth our while to look briefly into the conditions in these outlying districts.

CHAPTER IX

WAGE RATES IN THE OUTLYING DISTRICTS

Wage rates in the Central Competitive Field have been fully discussed in the preceding chapters. They range from the basic pick rates made by the Interstate Joint Conference to the multitude of rates fixed by district and subdistrict conferences and finally to those essentially local rates made by agreement between the foreman and the miners. In the last chapter the company men, who work for a day wage, have been considered in distinction from the actual miners, who are paid on a tonnage basis.

The Central Competitive Field, however, does not comprise the whole of the bituminous-coal producing area of the United States, although it does comprise the most important part of it. Outside of it are twelve so-called outlying union districts and a number of nonunion ones. Some of these districts are from one to two thousand miles away from the central block and differ radically from it in many of their problems and consequently in their wage rates. Most of them also differ radically from each other in the same respects. How the wage rates of these and of the nonunion districts are deduced from or influenced by the rates in the Central Field is described in the present chapter.

The twelve districts which lie outside of the Central Competitive Field are scattered nation wide from central Pennsylvania to Washington and British Columbia.[1] The most important of these "outlying districts" is District No. 2, central Pennsylvania, which consists of fourteen counties with about 45,000 union miners and an approximate annual union output of 40,000,000 tons.[2] Second in importance is the Southwest Interstate Field, which comprises Districts No. 14, 21, and 25. These districts have jurisdiction over Missouri, Kansas, Oklahoma, Arkansas, and Texas and have an annual combined production of about 18,000,000 tons. The least important outlying district in point of tonnage is District No. 24, Michigan, whose output is 1,500,000 tons.

The wide distribution and diversity in conditions in these areas causes marked differences in rates and working rules. In fact the original contract in each of the outlying districts was the outgrowth of indigenous conditions and in most of them was merely a codification of rates and rules that happened to be in force when the United Mine Workers succeeded in gaining recognition. Such wage rates and working rules were usually the result of the physical, market, and living conditions that pre-

[1] See p. 47.

[2] The central Pennsylvania district comprises Clarion, Armstrong, Jefferson, Indiana, Clearfield, Cambria, Blair, Bedford, Somerset, Huntington, Centre, Clinton, Elk, and Tioga counties. The total number of miners in this region, both union and nonunion, would be somewhere near 65,000 with an approximate production of 60,000,000 tons.—*Official correspondence.*

vailed at the time. For example, in western Kentucky (District No. 23) the first contract with the United Mine Workers (made in 1900) provided for a wage rate that was considerably lower than that existing in the Central Competitive Field. The reason was that at the time many mines in the adjacent country were working under nonunion conditions. The product of these nonunion mines came into the market in direct competition with that of the newly organized mines, and the operators pleaded that the market situation made impossible the paying of a wage rate as high as that fixed for other union territory.

The miners voluntarily accepted this lower rate; and the operators promised that should the union at a later date succeed in organizing the nonunion mines of western Kentucky a rate would be paid which would be more commensurate with that paid in the Central Competitive Field. Indeed, this promise was incorporated in the contract itself and was to the effect that:

> Both parties to this agreement concede the fairness to all concerned of the principle of equalization of wages under like conditions in the same competitive districts and in compliance with this principle it is agreed that the wages hereinbefore fixed shall be supplanted by a new wage, equivalent under like conditions to any rate of wages in excess of this scale, which the United Mine Workers of America may enforce uniformly throughout the western Kentucky district; but this new scale in no event shall be in excess of the Indianapolis scale of 1900; and further in the event of the nonunion mines in this western Kentucky competitive district, representing not

less than 80 per cent of the normal output of said nonunion mines, being on strike and closed down so that no coal is produced for market for thirty consecutive days, then shall the scale hereinbefore fixed be supplanted by the scale of 80 cents per ton for mining over the district standard screen and the rates fixed in the Indianapolis scale of 1900 for all other labor take effect at the expiration of the said thirty days, and continue during the period of said strike, shutdown, and nonproduction of coal.[1]

The relation between wage rates in the outlying districts and in the Central Competitive Field is by no means uniform. The rates in Washington and Wyoming are in many places relatively higher than those in the Central Competitive Field. These rates, too, are the result of conditions which existed prior to the organization of these districts, the basic factors here being the higher cost of living and the higher general wage levels which characterized conditions in this section of the country.

Where other conditions are equal the mining rates for the outlying districts are higher than those fixed at the four central basing points only at points that are comparatively free from the competition of the Central Field or of adjacent nonunion territory. That such should be the situation in the Northwest is self-evident and of course explains the ability of the union to maintain a higher wage rate. And, indeed, the operators of these northwestern districts, when seeking either to impose a lower wage rate or to oppose an increase in the

[1] Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. —, p. 520. 1920.

existing rates, have been compelled to justify their demands on grounds quite different from those of the operators of the other outlying districts. The latter operators usually argue that the existing rates are the sequel to the rates originally adopted when their districts were organized, and that those rates in turn were the result of the competitive relationship which existed between these districts and other coal-producing States. Mr. Clark, who represented the operators of District No. 2, central Pennsylvania, before the U. S. Bituminous Coal Commission of 1920, explained the existence of the rates in his district as follows: "Our agreements have been built up from a competitive standpoint and from a standpoint that fitted the conditions that surround the mining industry from an operating standpoint."[1]

That the same is true of the rates fixed for District No. 17, West Virginia, is evidenced by a statement made by Mr. Thomas Cairns[2] of the United Mine Workers before the United States Commission on Industrial Relations in 1914, when he said:

> It was conceded in the making of the joint agreement in 1903 that certain prices would be paid for certain seams of coal in the Kanawha district. I presume, the operators being present there, that the basis arrived at in their opinion was a fair basis; or I might say *the difference between the rates in the Central Competitive districts of Ohio, Indiana, Illinois, and western Pennsylvania were*

[1] Clark, —, Transcript of Proceedings: U. S. Bituminous Coal Commission, 1920.

[2] Cairns, Thomas, Testimony: U. S. Commission on Industrial Relations, June 9, 1914.

there taken into consideration and determined. And I presume that the rise and fall of increases or decreases in the Central Competitive Field would be taken into consideration in the making of every contract in the Kanawha Field. I presume that because the proper basis at that time in my opinion was fixed by those operators who participated in those meetings.[1]

Since these conditions and rates are ostensibly the result of competitive conditions, the operators have opposed any changes in wage rates which were not universal. The operators in the outlying districts have contended again and again that whatever differences may exist between these districts and the Central Competitive Field are the direct outcome of competitive equality, and that changes in either the wage rates or the working rules in any one outlying district that were not accompanied by similar changes in competing territory would lead to the extinction of mining operations in the places where such changes were made. In arguing before the U. S. Bituminous Coal Commission against a proposed change in the rates for the Kanawha district in West Virginia the operators distinctly said that an increase or change in the wage rates applied on a flat basis would "disturb the present regular differential which means the very existence of the coal industry in the (their) district"; and Mr. Diamond [2] of the Michigan operators used exactly the same argument in opposing the demands of the miners for payment for pushing cars when he said:

[1] *Italics are author's.*

[2] Diamond, , Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 9, p. 420, 1920.

Michigan can not very readily eliminate the pushing question. If it could be done and still maintain our competitive relations with the other adjoining fields it would be eliminated entirely, but it is one of the conditions of mining which can not be entirely eliminated so far as Michigan is concerned without destroying the coal industry by destroying its competitive relations with other fields.

Mr. Diamond likewise emphasized the same idea when contending against a change in the adopted standard for the thickness of seams in Michigan, for, as he said, competitive relations with other States had been built up, so far as labor costs were concerned, on a 30-inch standard which was predicated in the original scale of 1898, " and it would be suicidal to the Michigan coal industry to make such a change as the miners propose or to change the basis at all."[1]

The question as to how far these arguments are justified is beside the point at this juncture. It is, however, clear that similar arguments are untenable so far as the operators in the Northwest are concerned, their great distance from other fields giving to competitive equality a meaning different from what it has elsewhere. In Montana and North Dakota, it means, not equality with other coal fields, but wages and conditions which will make it possible to sell coal in competition with hydroelectric power; while in Washington it means ability to sell in competition with California fuel oil. In the Southwest a condition somewhat similar to that

[1] Idem, vol. 10, p. 452, 1920.

in the Washington district has come about. To be sure, competition with the coal fields of the East plays an important part in the negotiations of the Southwest Interstate Field, as can be seen from Mr. Harry Taylor's statement [1] before the U. S. Bituminous Coal Commission:

> We have built up by competitive bargaining relative scales, so that the fields can enjoy through competitive relations a certain market between the fields of the southwest and the total southwest against other eastern competitors. . . . If these differentials are destroyed it will immediately increase the amount of outside coal that would come in, and decrease the amount of coal that will be produced in the southwest. I can not impress upon you strongly enough that the necessity of maintaining the differential between that field and the adjoining fields is imperative if we are to live in the southwest.

Yet considerable complaint has been made by the southwest operators of the evils they experience from the competition of Mexican fuel oil and they have presented this fact as a basis for their opposition to wage increases. Evidently the miners, too, see in Mexican fuel oil an enemy to their power of collective bargaining; and the union representatives of the Southwest Interstate Field have gone so far as to suggest the imposition of an import tax on Mexican petroleum.

Wage-rate changes made by the Interstate Joint Conference do nevertheless affect the rates set for the outlying districts. The result is that in spite of the

[1] Taylor, Harry, Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 10, p. 468, 1920.

complexity of factors which has led to the many differences in wage rates and conditions in the outlying districts, these rates and conditions have a direct relation to those set for the basing points in the Central Competitive Field. It has long been the custom in some districts, and in many of these the wage contract has specifically stipulated, that any change in mining rates made by the Interstate Joint Conference for the Central Competitive Field should be applied also to the contracts covering the outlying districts. Indeed, evidence presented to the Bituminous Coal Commission is to the effect that settlements reached in the Central Competitive Field govern not only changes in wage rates, but in some districts (the Michigan district, for instance), also govern changes in hours, working rules, penalties, life of the contract, basis for settling internal differences, check off, fixing of the price for supplies, prices of house coal, and regulations as to car pushing.

The existence of this relationship between the conditions in the Central Competitive Field and those in the outlying districts has for some time been the subject of acrimonious debate between the operators and miners. Some operators insist that the practice of basing their contracts on those made for the Central Field should be stopped, and that the outlying districts should negotiate individual contracts, taking into consideration only their own particular situation as it exists to-day and not as it existed sometime in the past. Indeed it has been said that the outlying operators have been opposed to accepting the Central Field as a basis, and that this system

was forced on them against their will by the United Mine Workers.[1] The operators, particularly those adjacent to the newly developed nonunion fields of West Virginia, contend that the existing rates, although originally in harmony with the competitive situation, are entirely out of line with conditions as they exist today and that justice demands that each contract be based on a recognition of those competitive conditions which at present surround each district.

During the last decade many new coal fields have been brought into operation in West Virginia. The operators in these fields as well as those in certain sections of central Pennsylvania have through various devices succeeded in keeping the United Mine Workers from getting a foothold among their employees. Consequently these nonunion operators are not bound by any wage agreement with their men. They have a flexible wage-rate system which they can change at will. During periods of slack demand they can lower their wage rates and accordingly the price of their product and can in this way maintain their markets at the partial expense of their employees. The union operator, on the other hand, can not easily lower his labor costs during the life of the wage contract. When coal prices fall he must either shut down operations or continue production at a loss.

[1] Ogle, A. M., Testimony, Investigation of Wages and Working Conditions in the Coal-Mining Industry: Hearings on H. R. 11022 before Committee on Labor, House of Representatives, 67th Cong., 2nd sess., p. 146, 1922.

This state of affairs has led many of the union operators to seek to free themselves from the influence of the Central Competitive Field. One of their representatives [1] has publicly stated "that a basic scale that may suit Illinois (in the Central Field), which is nearly 700 miles away with markets entirely different, should have no influence on [his] district." What is really needed, he went on to say, is an entire revamping of the rate structure in the outlying districts and "if the United Mine Workers found it necessary—in order to protect them [selves]—to meet a [nonunion] competition that was . . . unfair, it [this revamping of the rate structure] might be the more happy way . . . for them to extend their influence."

The United Mine Workers contend, however, that these statements do not fit in with the facts as learned from their experience with the operators of the outlying districts. Not only do they deny that the Central Competitive Field contract as a basis for wage changes elsewhere was forced upon these operators, but on the contrary they insist that the outlying districts have always declined invitations to participate in a contract until after the basic rate has been fixed in the Central Competitive Field.[2]

Mr. Lewis,[3] president of the miners' organization,

[1] Watkins, T. W., Testimony, Investigation of Wages and Working Conditions in the Coal-Mining Industry: Hearings on H. R. 11022 before Committee on Labor, House of Representatives, 67th Cong., 2nd sess., p. 292, 1922.

[2] Moore, John, Testimony: Investigation of Working Conditions, etc., p. 121, 1922.

[3] Lewis, J. L., Testimony: Investigation of Working Conditions, etc., p. 227, 1922.

in describing his experience with the outlying districts said:

> There are produced approximately 200,000,000 tons of coal annually in the territory [the Central Competitive Field], entering into the same natural markets, produced under relatively the same physical conditions, at a relative mine cost; and whether any one wills it or not, that 200,000,000 tons of bituminous coal makes the market for the United States; and the market prices in other producing fields, or what we term the "outlying districts," are affected by the prices for which this coal is sold in the Central Competitive Field; and *we have found during all of our years of joint relationships that no group of operators in any outlying field would make a contract of any permanent nature until they had first been able to determine what the basis of settlement would be in the Central Competitive Field, so they could compute their relationship to the cost of producing coal in the Central Competitive Field and be guided thereby.* . . . We know and they [the operators] know that under no circumstances would they agree to make a wage scale before the wage was set in the Central Competitive Field. [1]

Whatever the merits of the case may be, changes in the Central Field have for many years and do today determine changes in the outlying districts. A comparison of conditions in these two groups of mining areas brings out the fact that with the exception of western Kentucky, northern West Virginia, and Wyoming the pick-mining rates of all outlying districts are relatively higher than the basic rates fixed by the Interstate Joint Conference. That is, for the same standard height of seam the outlying rates are higher than those in the Central Field.

[1] *Italics are author's.*

Take, for example, the standard of 3 feet 6 inches set for Indiana, where the pick rate is $1.08. Coal of this height in the Southwest Interstate Field generally carries a rate of $1.15 or more; in some counties of Missouri it carries $1.20; and in subdistrict 2 of Iowa it carries $1.21. Again, 2 feet 3-inch veins in the East Palestine section of Ohio of the Central Field have a $1.30 pick rate; in Michigan a $1.38 rate; and in subdistrict 4 of Iowa the extreme rate of $1.80. Similar differences can be found by comparison with almost any other outlying district.

Northern West Virginia and western Kentucky are exceptional. In the northern West Virginia district, where the standard seam is 5 feet the pick rate is $0.876, and in the western Kentucky district it is $1.0535; in Illinois it is $1.08.[1]

The magnitude of the differences that exist amongst the wage rates of the respective districts may be still more complicated by other factors. Such is the case at certain places where the screen method of paying for coal still predominates, although to be sure, differentials are provided for the run-of-mine product.

Machine Rates.—The labyrinth becomes even more confused when machine rates are considered. No uniform determining factor guides the fixing of machine differentials. To be sure, attempts have been made in places to base differentials on the investment in the machines, but most of the mine owners of the Southwest assert that the return allowed them is often not sufficient to justify main-

[1] For detailed mining scales for the outlying districts, see Appendix C, p. 294.

taining their machinery in operation. Indeed, some operators say that they have on occasion been forced by the low differentials to withdraw their machines from the mines and go back to pick mining.[1] On the other hand, in some districts a return on the investment in machinery has played little or no part in the determination of machine rates, the contracts providing only that the rate shall be so fixed as to equalize the earnings of the machine miners with those of the pick miners. In other districts the machine rates are based on the difference between the miner's output in former years when he worked with the "breast" machine (a type now almost obsolete) and his output today with the more highly developed "short-wall" machine. In still other places the machine rates are the outcome of whatever agreement may have been reached at one time or another by the district joint board,[2] the advantage to either side usually being the result of the tactical position of the bargainers at the moment. Accordingly we have a motley array of machine differentials running from 3 cents in some sections of the Southwest[3] to 18 cents in Michigan. In some districts machine runners are paid on a day-rate basis; while in others, they are paid a fixed amount for

[1] Interview with Mr. Harry Taylor.

[2] The joint board is usually made up of the executive committee of the operators' association and the district executive board of the union. Cf. Suffern, A. E., Industrial Relations in the Coal Industry: Investigations in Industry and Labor, Institute of Economics, Washington. D. C. (In preparation.)

[3] For detailed schedule of machine differentials in the outlying districts, see Appendix C, p. 294.

each square foot of coal that they undercut. In such cases all basis for a comparison of differentials is eliminated.

Day Rates.—In contrast to the diversity in mining rates in the outlying districts is the uniformity of inside day rates. With few exceptions the inside day rates fixed by Interstate Joint Conference prevail in the outlying districts. Most timbermen, drivers, and tracklayers receive the $7.50 day rate which obtains in the Central Field; and ordinary inside day labor, for which no special function has been specified, commonly receives $7.25. To this general practice only the northern West Virginia and western Kentucky districts and the districts of the Northwest are exceptions, the general rate in the first two being lower because of nonunion competition, and the rate in the Northwest being higher because of the higher cost of living and the general higher wage rate that originally characterized this group of districts.[1]

Owing to the differing degrees of control that the union exercises over outside workers, their rates differ materially from district to district and from subdistrict to subdistrict.

Payments for Dead Work.—Where the union is relatively powerful dead-work rates are fairly standardized, and where the union has little power no unity of treatment exists. The same general confusion, however, exists here as in the Central Field

[1] For detailed inside day rates for the outlying districts, see Appendix C, p. 295.

and is due to the same causes—the complexity of the factors involved.[1]

The outlying fields well illustrate the effects of adjustments based on conditions existing when the original contracts were made. They illustrate also, very effectively, the results of lack of uniformity or systematic machinery for adjusting wage rates. They picture also the results of a system which does not provide for changes in such conditions over a period of years. Virtually every wage contract in these fields was made at a time when the union had just secured a foothold in a given territory and in order to secure recognition by the operators naturally assented to the system of wage rates that fitted in with dominant competitive conditions. One gets the impression from the many statements made by the operators that they feel that the very fact that a rate exists ought sufficiently to prove it to be right and that they have therefore insisted that existing rates be incorporated into their contracts. Once a contract has been made and has been used as a basis for a period of years, it assumes a character of inviolability in spite of all its later consequences. It becomes institutionalized; and any radical change in its make-up is stubbornly resisted. Should the miners demand a significant increase in rates or readjustments which may inure to their benefit at the expense of their employers, the operators usually reply either that these rates have been built up as the result of competitive

[1] See pp. 125–131.

conditions and that any change will result in putting the operators at a distinct disadvantage with the operators in other fields and will cause the shutting down of mines and a loss to the miners themselves; or (should the former argument lack weight) that these rates have long been in existence and that competitive conditions have been built around them. That is to say, they have figured on these rates in adjusting their selling prices; and their selling prices, in turn, have served as the basis for fixing their competitive position in the market. Any radical change in the wage contract, therefore, even though it proves of immediate advantage to the laborers, will upset this competitive situation and injure the position of the employers and will eventually react upon the laborers.

Likewise, miners oppose changes in the wage contract, especially changes that may turn out to be to their disadvantage. The very fact that a contract has been in existence for a period of years and the fact that a given district has functioned under its provisions should, they contend, be sufficient proof of its effectiveness and justification; and they tend to look upon such suggested changes as an attempt to strengthen the employers' position.

The usual result is that a given set of conditions once codified tends to remain unchanged, such occasional changes as do take place being the result of the exceptional bargaining strength of one side or another at a given time. Thus regional differences are made more or less permanent, and the different contracts in the outlying districts become char-

acterized by contradictions and diversities. This situation is not, however, peculiar to the outlying districts alone, for it will be remembered that something like this state of affairs exists, although not to such an exaggerated degree, in the Central Competitive Field. Indeed, any system of collective bargaining which made adjustments on a truly scientific basis, assuming such to be possible, would produce a condition very different from that which today exists in the four central States. The implications of a system of rate determination based on the theory of competitive equality as interpreted either by the operators or the miners; the adjustments that would have to be made in putting such a system into operation; and the effects of the system as now operative will be considered in the later chapters.

PART III

COMPETITIVE EQUALITY AND THE PREVAILING WAGE STRUCTURE

CHAPTER X

INCONSISTENCIES IN THE WAGE RATES STRUCTURE

That the present rate structure in the bituminous-coal industry has little uniformity is self-evident. Many implications are involved in an attempt to remove the diversities which exist. Before elaborating these implications it is worth while once more hastily to survey the factors that underlie the system itself.

The basic machine, it will be remembered, is the Interstate Joint Conference, which fixes the base rates for certain points in the Central Competitive Field. These base rates are supposed to determine the rates which will be paid in each of the four districts included in the Central Field; and any changes made by the conference are reflected in the rates paid in the outlying districts. The district conferences adjust the rates at the various mining centers to the base rates set by the Interstate Conference. When adaptations that are particularly local in character must be made, subdistrict conferences do the adjusting. Contracts in the outlying districts are framed by independent district conferences, are based upon local conditions entirely, and are supposedly related to the contracts fixed for the central basing points only to the extent that they

incorporate changes in wage rates equal to those made at the basing points.

Underlying these contracts is the definite principle of competitive equality. This principle was years ago accepted as the basis for adjusting wage rates in order that as many operators as possible might become parties to the collective bargain. The interpretation of this principle has from the very beginning been the subject of controversy between the operators and miners—the former contending that competitive equality means access to the market for all operators, irrespective of variations in mining conditions; the latter insisting that competitive equality means uniform minimum earnings for all miners irrespective of local conditions. The application of the principle has varied along the lines of one interpretation or another according to the relative bargaining strength of the two sides at the time of negotiation. Neither side has been consistent in maintaining its interpretation; and on occasion each side has adopted the interpretation of the other, when such an interpretation has proved to be to its own advantage. Competitive equality as defined by the operators, however, has usually dominated the determination of pick-mining rates.

In fixing these rates certain fundamental factors have ostensibly guided negotiations. The first of these has usually been freight rates. Originally both sides were apparently agreed as to the legitimacy of making allowances for differences in freight rates when fixing the amount to be paid for mining coal. Many early contracts specified a lower wage

rate for mines located at longer distances from the market than for those located at shorter distances.

The second significant factor in rate determination has been the thickness of coal seams. The theory here has been that both the miners and owners should bear a part of the cost of maintaining in operation the thin-seam mines; the miner by accepting a wage rate relatively less liberal than is paid in the better seams; and the operator by paying a higher wage than his competitors who operate in the thicker seams.

With the application of machinery to mining, has come a third consideration; namely, a differential to allow for the work of the machine. In the determination of rates to be paid for dead work little attention has apparently been paid to competitive equality. Mines where these rates are the results of individual bargaining between a miner and the mine foreman are not rare. Day rates for inside day labor have been generally fixed on a uniform basis, although here, too, exceptions can be cited. Contrasted to these are the rates for outside laborers, which are fixed almost entirely by local bargaining. In some mines, owing to the fact that the men concerned are not under union jurisdiction, outside rates are beyond the realm of collective bargaining.

The present chapter will undertake to discuss the many inconsistencies and illogical adjustments in the wage-rate structure. Attention will be given to the more important of the maladjustments and to the reasons for their existence. They will be

considered under the following headings and in the order given: I. Freight differentials; II. Thick and thin vein differentials; III. Machine differentials; IV. Dead work and yardage; and V. Company miners' rates.

Any attempt to apply the principle of competitive equality literally, even by an impartial tribunal, would meet almost insurmountable difficulties. Opinions as to just what competitive equality really means differ markedly and, combined with the mutual jealousies and selfish desires that are always present when opposing parties are determined to secure everything possible for themselves, render the problem perplexing. This, frankly, is the state of affairs in the coal industry; and one wonders why the already large number of diversities and inconsistencies is not actually larger. This question forcefully presents itself in an analysis of what a series of wage rate adjustments would really mean.

Assuming for the sake of argument that the theory of competitive equality were interpreted in the same manner by both of the contending forces and that it were agreed that this meant that rates should be so fixed as to allow each operator to compete effectively with other coal producers, how would those factors which admittedly affect competitive equality be treated? If all conditions were equal, that is, if the thickness of seam, quality of coal, amount of dead work to be done, and all the other factors which play a part in fixing coal costs were the same at all four basing points, competitive equality would

demand an equal mining rate at all four basing points. That is, if all shipped into the same markets and all paid the same freight rates. Now as an actual fact the conditions at the four basing points are not to any extent alike. Not only does the standard thickness of the coal seams vary, but the character of the roof, presence of impurities, amount of dead work to be done, etc., are different. In addition, the principal markets for the output of the individual basing points are not the same.

I. FREIGHT DIFFERENTIALS

In spite of all of these differences, the basic pick rates fixed in 1898 for all four basing points were approximately identical, and the same relation still continues.[1] Yet none of the four basing points pay the same freight rates on coal shipped into the same market. Taking the Chicago market as an example, the rates per ton for carload lots from different points differ markedly, as shown below:[2]

Danville, Ill.	$1.55
Pittsburgh, Pa.	3.09
Wellston, Ohio	2.84
Terre Haute, Ind.	1.60

[1] The prevailing pick rate for the Illinois and Indiana bituminous basing points is $1.08, while that for Pittsburgh and Hocking Valley is $1.1164. This difference of 3.64 cents is the result of an adjustment agreed upon when a change was made from the screen to the run-of-mine basis of making payment. (Cf. p. 87.)

[2] Data from Interstate Commerce Commission.

The rates paid for shipping coal into the Chicago market from the different basing points have always differed; and yet the mining rates have been more or less identical. Chicago, to be sure, is not the principal market into which all four basing points ship their product. The advantage accruing to Illinois and Indiana in shipping into Chicago, for example, is presumably offset by a similar advantage which accrues to the Hocking Valley, Ohio, and the Pittsburgh, Pa., operators in shipping into other markets. In this way it is assumed that competitive advantages are made equal and that what a basing point gains in one market is offset by gains to its competitors in others.

In the last analysis, freight rates are relatively insignificant in determining wage rates and in obtaining competitive equality. Numerous changes in freight rates have taken place during the last twenty-five years; and with these have come changes in the freight differentials between the various mining centers and consequent alterations in the relative charges that must be borne by the product of the individual districts in going into the same market. Yet the relation of the wage rates at these mining centers to each other has remained the same. A comparison of freight charges for coal shipped into Chicago in 1898 and in 1923 shows how the relative advantage accruing to the various basing points has shifted since the inauguration of the Interstate Joint Conference movement.

It is evident from the table that, compared with the Illinois and Indiana districts, the competitive posi-

tion of the Ohio and Pittsburgh districts is not as favorable on the Chicago markets as it was in 1898. The increase in the cost of shipping coal from the latter points is $1.34 as compared to an increase of 80 and 82½ cents for Terre Haute and Danville, respectively.

FREIGHT RATES PER TON FOR BITUMINOUS COAL IN CARLOAD LOTS TO CHICAGO, 1898 AND 1923

From	1898	1923	Increase 1898–1923
Danville, Ill.	$0.62½	$1.55	$0.82½
Terre Haute, Ind.	0.80½	1.60	0.80
Wellston, Ohio	1.50	2.84	1.34
Pittsburgh, Pa.	1.75	3.09	1.34

Similar changes in the competitive position of mining centers which have resulted from changes in freight differentials can be found even within single mining districts. Changes in freight rates from 1914 to 1921 for coal shipped to Chicago from various points in Illinois show increases ranging from 75½ cents to $1.01½ for different areas within District No. 12.

During this same period of seven years, on the other hand, the relation of wage rates in these subdistricts remained the same. Changes in the wage rates for every subdistrict in Illinois were identical, namely 47 cents.

Although freight rates were of consequence in establishing the original rate structure, such is not

FREIGHT RATES PER TON FOR BITUMINOUS COAL FROM DIFFERENT POINTS IN ILLINOIS TO CHICAGO, 1914 AND 1921 *

From	1914	1921	Increase	Per cent increase
Benton	$1.05	$2.06½	$1.01½	96.7
Springfield	0.82	1.74½	0.92½	112.8
South Wilmington	0.60	1.44	0.84	140.0
Mazonia	0.70	1.57½	0.87½	125.0
Coster	0.60	1.51	0.91	151.6
La Salle	0.57	1.40	0.83	145.6
Peru	0.90	1.65½	0.75½	84.0

* Publication of Production and Profits in Coal: Hearings on S. 4828 before Committees on Manufacturers, U. S. Senate, 66th Cong., 3d sess., pp. 2121, 2123, 1921

the case today. If we were to have real competitive equality the fixing of the mining rate for each unit of territory would have to be based on a thorough examination of cost records and of railroad tariffs. It would have to be the result of the work done by impartial experienced accountants and traffic managers and not of a series of compromises reached at a week's conference of miners and operators. It would either have to provide for changes in the wage rates every time a significant change was made in the freight rates from a given point or it would have to eliminate entirely all consideration of freight rates. Indeed the miners have many times contended that freight rates should play no part in determining the rates they should receive. They have gone so far as to say that the reverse should be true; that is, that freight rates should be

based on mining rates and they insist that this is already done in some States, particularly in Ohio.[1]

The miners' attitude on this matter was forcefully presented by Mr. David Duncan,[2] former president of the western Kentucky miners, when he said:

> Granting for sake of argument that the rate into Chicago is discriminatory, that is not a good reason why western Kentucky coal mines should receive lower wages than the miners of the Central Competitive Field. All other things being equal or practically so (including the cost of living, which has become an important factor or, in other words, the most important and determining factors in the adjustment of wage disputes and consummation of working agreements) freight rates must be so adjusted and regulated to insure every coal operator an equal opportunity to get into the market with his product. Why, if the freight rates into Chicago are discriminatory as to western Kentucky coal operators, then the remedy is undoubtedly a proper adjustment of freight rates and not the establishment and maintenance of huge differentials in coal miners' wages * * * The theory so long advocated, and in many instances practiced, that freight rates should regulate wages is so obviously false, misleading, and unsound, that it should, indeed, be discredited and made a passing issue by modern civilization.

II. THICK AND THIN VEIN DIFFERENTIALS

The lack of consistency in applying the principle of competitive equality also characterizes the differentials between the thick and the thin vein mining

[1] Maurer, C. E., Transcript of Proceedings: U. S. Bituminous Coal Commission, 1920.

[2] Duncan, David, Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 2, p. 529, 1920.

rates. The theory of these, which has already been discussed, is, as has also been said, in direct contradiction to the principle of competitive equality.[1] Instead of more nearly equalizing the position of the operator in thin seams with that of his more advantageously located competitor, it adds to the burdens already imposed upon him by natural conditions.

The division between a thick and a thin seam has occasionally been arbitrary. In the Pittsburgh district, for example, the thick seams are separated from the thin by an imaginary line which runs from a mine on the Youghiogheny River westward to a town in Washington County. All mines north of this line are considered thin-seam mines and consequently pay higher wage rates, and all mines to the south are considered thick-seam mines and pay lower wage rates. The result is that two mines on opposite sides of the line, having identical conditions, shipping into the same markets, and selling their coal at the same price, may have different wage rates, the operator who by chance happens to be south of the line paying his pick miners 8.53 cents less than does his less fortunate competitor on the north.

Such a system may result in extreme injustices. This is particularly true when one part of a mine happens to be on one side of the imaginary line and another part on the other. Such cases do indeed exist. One mine, on the Monongahela River, for instance, ostensibly located in the "thin vein" has a tipple which extends over the imaginary line into

[1] See page 94.

the "thick vein." The mine owner insists that since his tipple is in the "thick vein" his mine should be rated as a "thick vein," and accordingly he pays the lower wage rate. To this, of course, the miners strenuously object, for, since the coal is actually mined on the thin-vein side, they feel entitled to the thin-vein rate. Thus far they have been unable to secure any concession to their demands for a change.

Complaints against the continuation of these differentials are not confined to the coal miners. Complaints have been voiced by not a few operators who, from time to time, have asked for the abolition of the differential which makes it possible to produce in the so-called thick veins "approximately 10,000,000 tons of coal, at substantially 10 cents [a ton] below the thick-vein labor cost"—a tonnage which "enjoys the same freight rates, goes into the same markets, is used for the same purposes, [and] commands the same selling prices."[1]

This situation in the Pittsburgh district has roused considerable dissatisfaction in both operators and miners and has afforded grounds for perennial disputes. The mine owners in the "thin seams" can see no reason why they should be compelled to pay higher wage rates than their competitors south of them and have used the arbitrary division of seams as a basis for demanding that their rates be lowered to equal those paid in the "thick seams." The

[1] Keefer, W. W., Joint Conference of Coal Operators and Coal Miners of western Pennsylvania, Ohio, Indiana, and Illinois, 1916.

miners in the "thick veins," on the other hand, insist that, since many of them do as much work as the miners in the "thin vein," they are justified in demanding a higher rate—indeed a rate equal to those paid in the "thin veins." They reinforce this demand by the contention that the coal from both seams enters the same markets and is sold at the same price; and they insist that this fact, by itself, proves the ability of the "thick-vein" operators to pay the higher rate without affecting the price which the public must pay for the product.

A similar situation, though one less exaggerated in degree, exists in some other districts. In Indiana the $1.08 rate applies to coal over 3 feet 6 inches high; and all coal under this height carries with it an added differential. In Illinois, on the contrary, the $1.08 rate is fixed for 5-foot coal with an added differential for all coal below this height. Yet both districts lie in the same coal field and are divided only by imaginary State lines; and conditions in the mines immediately adjoining the State lines are almost identical. Similar inconsistencies could be cited in all of the four districts in the Central Competitive Field. Those already cited should, however, portray clearly enough the motley character of the present situation.

The following description given by a union official [1] of the state of affairs in one union district is a good example of how disorganized conditions may become:

[1] Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 12, p. 590, 1920.

In some sections of this district recognized differentials for "low" coal have been established for years; in some other sections, during the last two or three years, owing to inability to secure labor for "low" coal work, a higher tonnage rate has grown up and is referred to as a bonus or differential, depending upon the point of view, while in other sections no difference at all is made in the rate paid in thick or thin seams.

The policy of adjusting wage rates to provide for the thickness of the coal is entirely incompatible with the accepted theory of competitive equality. Indeed, as has already been emphasized, it is a direct contradiction to the idea that all operators should have an equal opportunity in the market. The thin-vein differential makes still more unfavorable the already adverse position of the thin-vein operator and in times of slack demand hastens the shutting down of his mines.[1] The two policies can not very well stand side by side. If competitive equality is to predominate, a relationship different from that now existing between the thick and thin vein mining rates must be established. The present system of differentials will have to be entirely reversed; for competitive equality assumes that all natural differences will be eliminated through the wage differential. This means that every variation in the coal seams will

[1] It should be noted that the higher wage rate paid by the thin-vein operator is sometimes offset by the relatively higher quality of his coal. His product in such cases commands a higher price and enables him to pay the higher wage rate and yet profit from the operation. Indeed, the price that the operator can get for his product as compared to that received by his competitors is frequently considered by the miners in their insistence on a given rate for a given subdistrict.

have to be taken into consideration and that the thin-seam operators will have to be put on a footing equal to that of the thick-seam operators by means of a lower wage rate. It means that as a coal seam becomes thinner wage rates go down, or, in other words, that wage rates must vary in direct proportion with the thickness of the seams. All this, of course, logically assumes a separate mining scale for each district, and for each subdistrict, and even for many individual mines.

If, on the other hand, competitive equality is to be laid aside and wage rates are to be adjusted on the basis of the work to be done in mining a ton of coal, a change from the present method of fixing wage rates equally as radical as that outlined above will have to be devised. Similar adjustments will have to be made and similar variations will exist. The present method of paying the same rate for half a dozen different heights of coal will have to be abolished. A system of rates based on the amount of labor expended will demand the same rate for all districts which have the same standard height of seams. It will demand, too, that there shall be separate scales for separate seams and that variations in wage rates shall bear a fixed relation to variations in the height of the coal, degree of dip, character of roof, presence of faults, rolls, etc.[1] This relation will be an inverse one; and wage rates will go up as the thickness of the seams goes down.

[1] See p. 120.

III. MACHINE DIFFERENTIALS

Machine rates are as fully in need of a general readjustment as are the freight and thin-vein differentials. The fact that contradictory views exist as to what shall determine the differential between pick and machine mining rates has already been emphasized. The miners contend that it should be sufficient only to warrant the installation and maintenance of machinery; that is, that it should be just large enough to give to the operator a "fair" return on his investment. The operators, on the other hand, contend that the differential should be such as to give the machine runner and loader an income equal to that of the pick miner.

In presenting these opposing contentions each side justifies its demands by arguments which its opponent uses (and which it, at times, denies) in the adjusting of pick rates. The miners, in demanding a machine differential just large enough to make possible the installation of machines, maintain that any larger differential will give to the owner of a machine mine a surplus which will enable him to undersell pick-mined coal. In other words they demand a differential which will maintain that competitive equality on which the operators insist when adjusting pick rates—an equality which will make it possible for all producers to continue in operation. The operators, on the other hand, when demanding that uniformity of pick and machine miners' earnings shall be the guiding factor in determining machine differentials, appear to be

asking for the adoption of a principle which they themselves deny when presented by the miners in the adjustment of pick and day-labor rates.

In actual practice, both the theories of the operators and those of the miners control in different districts. The local bargaining strength of the opposing sides determines whether one theory or the other shall predominate. As a consequence many outlying districts where the union is relatively weak have differentials which tend to equalize pick and machine miners' earnings. Other districts where the union's strength is the greater have differentials just large enough to make possible the maintenance of machinery. The relative power of the union and the operators is clearly illustrated in the different districts of the Central Competitive Field, the Hocking Valley and Pittsburgh operators being allowed 17.64 cents per ton to cover the cost of maintaining their machines, the Indiana operators 12.5 cents, and the Illinois operators 10 cents in the Danville district and 7 cents in all other districts.

Within the individual districts diversities also exist:[1] In Indiana the machine rate for all mines is obtained by deducting a fixed differential from the pick rate. In the Pittsburgh district the differential varies with the thickness of the seam. In Ohio four different differentials are in effect. They vary with the thickness of the coal seam and allow to the operators in the thin seams a larger differential than those in the thick seams. In Illinois,

[1] See p. 110.

on the other hand, where conditions of mining are more varied than in any other of the Central Competitive Field districts and where about a dozen different pick rates prevail, no provision at all is made for the height of the coal, and the machine rate is everywhere (except at Danville) 7 cents below the existing pick rates. This condition is indeed contradictory.

We have in effect a system which in some districts makes allowances for physical conditions and in others does not. The wear and tear on a machine and the rate of depreciation is greater in a thin seam than in a mine with high coal. The cost of operating machines is higher in coal which has a large number of impurities than in coal which is relatively free from such. Mr. John Lewis [1] stated this in 1920 when he told the U. S. Bituminous Coal Commission that "almost every machine is a proposition which is separate and alone unto itself, and the problem [as to what percentage of the benefits from the introduction of machinery should go to the miners] has to be worked out in accordance with the situation that exists locally." The Illinois Coal Operators' Association claims that diversities in conditions cause the cost of maintaining machines to vary from 5.99 cents to 16.99 cents per ton.[2] Yet in two of the Central Field districts no allowance is made for either the height of coal or the impurities

[1] Lewis, J. L., Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 12, p. 556, 1920.

[2] Northern Illinois Coal Operators' Ass'n exhibits submitted: Transcript of Proceedings U. S. Bituminous Coal Commission, vol. 1, pp. 1–3, 1920.

in the seam and the same differential is granted to all operators alike.

Such allowances as are made for physical conditions are characterized by the greatest inconsistencies. There appears to be no relation between the physical conditions (particularly the thickness of seam) and the amount of the machine differential allowed the operator. One contract drawn up in the Pittsburgh district,[1] for example, provides for a 13-cent differential for coal less than 3 feet high and a 15-cent differential for coal between 3 feet and 3 feet 6 inches high. In other words, in the higher seams, where conditions for using machinery are naturally more favorable, the operator is allowed a greater return per ton of coal to cover his machine-operating costs than he is in the lower coal. Similar inconsistencies could be cited in other districts.

Another example of the unsystematic character of the machine differentials is to be found in their tendency to remain unchanged once they have been

[1] The agreement containing these rates was drawn up between the Pittsburgh Seam Mines of the Hicks Coal Interests and District No. 5, United Mine Workers of America, but though based on the majority award of the U. S. Bituminous Coal Commission, it failed of ratification at the last moment. It affords, nevertheless, a good example of the haphazard way machine differentials are handled. The rates fixed in this agreement were:

Width of vein	Pick rate	Machine rate	Differential
2 feet 6 inches to 3 feet	1.22	1.09	0.13
3 feet 1 inch to 3 feet 6 inches	1.17	1.02	0.15
3 feet 7 inches to 4 feet	1.10	0.98	0.12
4 feet 1 inch to 6 feet	1.04	0.91	0.13
6½ feet and over	0.99	0.88	0.11

fixed. Adjustments are not made to meet the changes that have affected the many factors which influence the cost of machine maintenance. The basing-point differentials have been in existence for different lengths of time. The Illinois differential, for example, was adopted by the State Conference of 1898 and in twenty-six years has undergone no change. The Indiana differential was originally fixed in 1901, the present Ohio differential in 1914, and the Pittsburgh differential in 1916.

During these periods changes in the cost of many things have had a direct bearing on the costs of machine mining. The machine differential is supposed to cover the costs of upkeep, depreciation, interest on investment, electrical power, transmission lines, repair parts, repair labor, services of wiremen, mechanics, electricians, etc., as well as the cost of the machines themselves. The cost of all of these factors has undoubtedly changed during the past twenty-six years; yet neither during periods of rising costs nor those of falling costs has the 10-cent differential at Danville been changed. The same is true of the twenty-two years' history of the Indiana differential.

A truly systematic arrangement of machine differentials would result in a situation quite different from that which now exists. The very idea of a fixed arbitrary differential for an entire district does not fit in with either the operators or the miners' conception of the function which a machine differential presumably serves. If it is to provide for the

maintenance of machinery alone so as to keep equal the competitive position of pick and machine mines, then it must provide for a separate differential for each mining center where adjacent mines have more or less similar conditions. It must provide too for changes in the differential to meet changes in the cost of installing and maintaining machinery. If, on the other hand, the advantages of the installation of machinery are to inure to the operators alone, and machine rates are to be fixed so as to give to the machine miner an income equal to that received by the pick miner, the differential will have to be changed with each change in the pick-mining rate. In neither case will a fixed differential bring about the desired results. Through no manipulation of statistical data can one conceivably arrive at a system of wage rates for machine mining which will provide either for competitive equality or for equality of earnings (minimum or otherwise) and at the same time maintain a fixed differential over any considerable mining area or over any extended period of time.

Any plan of systematic differentials calls for a detailed analysis of machine costs, which can be obtained only by a minute investigation of accounting records. It calls also for the willingness of the operators to present to the miners a frank and honest analysis of machine-mining costs and the assent of the miners to a periodic readjustment of machine rates based upon such an analysis. Up to the present no such condition has existed.

We have here a condition which is typical of the

several others already mentioned. That is to say, we have another example of the difficulties involved in changing an existing practice, which at one time may have effectively served its purpose and was therefore justifiable. But the practice has since become institutionalized and no longer meets the existing requirements. Changes to fit the facts are strenuously opposed by one side or the other, for changes mean that some one will have to give up something that he has had in the past—and few of us are willing to do that.

IV. DEAD WORK AND YARDAGE

The determination of dead-work and yardage rates is even more haphazard than that of tonnage rates. The Interstate Joint Conference has never attempted to formulate a policy with respect to yardage and dead-work rates. It has limited its activities to determining the increase that is to be applied to the existing yardage and dead-work rates; and has left them to be handled by purely local conferences of operators and union officials. Consequently uniformity in handling dead-work payments is sadly lacking. Some local agreements provide a fixed dead-work scale which may be adjusted to either a piece or a time basis. That is, dead work may be paid for at so much per yard or so much per ton, the latter to be added to the regular tonnage rate; or it may be paid for on a time basis—usually an hourly rate which is equal to the maximum rate for inside day labor. Other agree-

ments merely provide that certain work should be paid for at prices to be agreed upon with the mine foreman. In some districts dead work is done by company men or day laborers. Certain district contracts simply specify that existing customs shall be continued; but instances can be cited where neither the operators' nor the miners' officials have been very clear as to just what the custom is.

These differences have produced a most contradictory state of affairs—one which makes provision for paying for certain types of work in some localities and not in others; which prescribes $1.90 per yard for a given task in one subdistrict and $4.15 in an adjoining subdistrict;[1] which provides for *additions* to the standard mining rate for coal below a certain height in one State and for *deductions* from the corresponding standard in another State.

The prevailing system makes impossible the realization of either competitive equality or of uniformity in miner's earnings. A serious attempt to bring about competitive equality among operators would show how dead work complicates the task. If it were possible or socially desirable to throw all the risk of unfavorable natural conditions on the miner no complications would appear, for under such circumstances the operators' cost of producing a ton of coal would not vary with the amount of dead work required. But when this cost or a part of it is thrown upon the operator it is clear that the differences in dead-work cost in the different districts would have

[1] See p. 128.

to be considered in fixing wage rates that would equalize the cost of production. This could be done in one of two ways: the cost of dead work in each district could be carefully worked out and the tonnage rate figured to allow for these differences, just as allowances have been made (theoretically at least) for differences in freight rates. Or, in adjusting the tonnage differentials the dead-work factor could be ignored; and then the dead-work rates could be so adjusted that the total cost per ton for dead work should remain the same from district to district. This would mean of course that in a district in which a relatively large amount of dead work was necessary the rates per ton would be relatively low. Neither method could be followed with any approach toward accuracy without a careful study of dead-work problems in every district and elaborate calculation of the cost in each district.

When looked upon from the point of view of uniformity in miners' earnings the problem of dead work may be considered from two aspects: that of equalizing the earnings of individual miners in the same district, so that differences in earnings may reflect merely differences in skill; and that of equalization of average earnings between districts.

It is apparent that the differences in the earnings of different individuals in the same field can not be wiped out until a rate for dead work is established that is just sufficient to make it a matter of indifference to the miner whether he works in a room or entry, in a good place or a bad. But as a practical proposition we really have here a case in which a half

loaf is better than none; inadequate payment for dead work is better than no payment at all. Consequently every step in providing payment for dead work does something to minimize the inequalities in earnings between miners working in the same district.

Equalizing earnings from district to district is more complicated, for the amount of dead work required is not the same in all districts. Theoretically, of course, it would be possible to equalize the *average* earnings between districts by taking account of the difference in dead work required when adjusting the tonnage rate between districts. To some extent this is already done; but it is obvious that to do it accurately would require nice comparisons between districts and elaborate accounting records such as have never been produced at a joint conference. In short, such an adjustment is practically almost if not quite impossible. If it is not practicable to adjust the tonnage rates to equalize earnings between districts, even when dead work is left out of consideration, it is surely still more difficult to make such an adjustment when payment for dead work is introduced. For any such payment introduces a new factor to be considered; namely the remunerativeness of an hour's labor at dead work compared with the remunerativeness of an hour's labor at mining. Where this differs from district to district it is clear that another complication has been added to an already overcomplicated problem.

The only way dead work can be prevented from

complicating the equalization of average earnings from district to district is by establishing dead-work rates that are as remunerative as mining rates. In that way and in that way alone would it be possible to equalize earnings between districts as well as between individuals. On the whole, it is clear that either the establishment of competitive equality or the equalization of earnings between districts calls for careful consideration of the dead-work rates. It calls for elaborate studies of costs and earnings with accurate records and careful analyses. It calls for painstaking adjustment of rates in one district to rates in another by some central machinery capable of viewing the situation as a whole.

Thus far, neither accurate record keeping nor a desire to make careful adjustments has prevailed in the industry. Attempts to remedy gross inconsistencies have been successfully opposed by the side which might lose a present advantage by any change in the existing practice. Moreover, dead-work and deficiency rates come within the category of internal grievances; and the interstate joint agreement specifically provides that internal differences should be settled within the various districts *with the understanding that only by mutual consent shall anything be done in subdistrict, district, or wage-scale conventions that will increase the cost of production or decrease the earning capacity of the men.*[1] Under such cir-

[1] Interstate Joint Agreement, Mar. 31, 1920. There have been periods when the above clause was omitted from the interstate contract. But even the omission of this clause had no effect on the readjustment of dead-work rates.

cumstances it should be evident that in the immediate future, at least, little orderly adjustment of dead-work rates can be hoped for.

V. COMPANY MINERS' RATES

Alone in the coal industry, the rate structure for inside company men shows any approach to consistency. Here the principle of uniformity has been almost universally adopted, and each class of inside company men receives the same day rate in virtually every district. Little or no provision is made for varying conditions; and with few exceptions all operators are expected to pay exactly the same rates for the same type of work.

The number of inside company workers has a direct bearing on the cost of mining coal. Unlike the miners, who are paid on a tonnage basis and whose number in any given mine therefore plays no part in the cost of mining, the company workers are paid on a daily wage basis. There is a direct relation between the number of inside company men employed and the cost of mining coal. The larger the number of inside company workers the larger is the wage bill to be borne by the output of a mine. Natural conditions have a direct bearing on the number of inside company laborers that are necessary to the efficient operation of a mine; and the number employed may be anywhere from 18 to 28 per cent of the total labor force,[1] the percentage increasing

[1] Publication of Production and Profits in Coal: Hearings on S. 4826 before Committee on Manufactures, U. S. Senate, 66th Cong., 3d sess., p. 1161, 1921.

as the conditions of mining grow unfavorable. Consequently most mines which employ a relatively small number of inside company men have much more favorable production costs than do those competitors whose company men comprise a larger percentage of the labor force.

This situation, it is quite evident, upsets to a large degree the equality in competitive conditions theoretically attained in the determination of the pick rates. To be sure, exceptional mining sections can be cited where the increased cost of production resulting from the need of maintaining a proportionally large number of inside company workers has resulted in special wage concessions by the union. Such special concessions, however, do not today meet with approval. In the Jackson, Lawrence, and Pomeroy sections of southern Ohio [1] the low nature of the coal seams requires a large amount of dead work. This extra work in turn necessitates the employment of a larger number of inside day workers than are commonly needed elsewhere and therefore adversely affects the cost of production in these subdistricts. This unfavorable position of the southern Ohio operators was recognized some years ago, and a lower wage rate was set for inside day labor, thus manifestly imposing a share of the burden brought about by unfavorable conditions on the inside company workers.

In the last analysis, then, two conflicting policies appear. In determining the wage rates for the tonnage men natural variations are considered and a

[1] See p. 143.

higher rate is paid to those who are employed in mines with unfavorable conditions; in determining those of the inside day laborers the rates are commonly based on the assumption that differences in conditions are to play no part and that all workers doing similar work are to receive an equal rate.

When departure is made from the accepted practice of fixing inside day-wage rates, the contrast between the two policies is still further emphasized. Unfavorable conditions are used as a basis for higher rates for the tonnage men and lower rates for the inside company men, thus treating the two types of labor in an exactly opposite manner. In southern Ohio, for example, the thin-vein tonnage man gets more per ton for his services than does his fellow-worker who is employed in thicker seams, but the inside laborer gets less than the man who does similar work under more favorable conditions. In effect the inside worker through his lower rate pays part of the higher wage rate of the miner.[1]

[1] It should be borne in mind, however, that owing to the thinness of the seams and the limited output of the miner, the miner's income is relatively small in the "thin" subdistricts. The lower rate for day workers results in keeping their earnings on a level approximately equal to that of the tonnage men.

In the thin seams of northern Illinois the increase in the rate for company men in the three years prior to 1920 gave this class of workers an earning capacity greater than that of the tonnage men. To equalize the earnings of these two classes of labor the operators proposed that the tonnage rate be increased, the increase to be deducted from the day wage rate in such a ratio as would leave the cost of production the same. In this way it was believed that the miner's earnings would be increased and the company man's earnings decreased and an equality between the two brought about. To this suggestion, however, the miners refused to agree. (Cf.

These contradictory policies of wage-rate determination are surely without any logical basis. Consistency would call for a change in one or the other. If we are to have a system of uniform rates, the rates for inside day labor will have to be made equal for all districts and the burdens imposed by unfavorable conditions will have to be borne by the mine owners alone. If on the other hand competitive equality is to be the determining factor the day rates for inside day labor will have to be readjusted to fit the variations in seams and the variations in the number of inside company men employed. The policy of paying lower rates for the thinner seams, as it prevails in southern Ohio, will have to be made universal. In like manner, a lower rate will have to be fixed for inside company men employed in seams which run over 6 feet in height. The extra amount of labor and supplies required in timbering such seams increases the cost of mining,[1] and to bring about real competitive equality this disadvantage would have to be overcome.

The same policy would, of course, have to be adopted for outside workers, whose relation to labor costs is in many respects very similar to that of inside workers.

VI. CONCLUSIONS

The elaborate machinery for the determination of wage rates in the organized fields of the coal industry

Northern Illinois Coal Operators' Ass'n, Statement on the Mining Machine Differential: U. S. Coal Commission, p. 6, June 18, 1923.)

[1] See p. 94, footnote.

and the assumption that a definite set of principles underlies this machinery and guides the determination of these rates gives the casual observer the impression that the industry possesses a well-defined and systematic system of wage adjustments. This system of rate determination at first glance appears to be one which gives to the individual laborer an equitable wage rate and at the same time takes into consideration the competitive position of the employer. From the very first day of the Interstate Joint Conference's existence, however, there have been opposing contentions as to how the underlying principles governing this system should be interpreted. Neither side has been willing to agree to its opponent's point of view. Each side has insisted that its interpretation be the dominating one. And even when some approach to harmony has been attained the selfish motives of one side or the other have made it impossible to adhere to any definite policy.

One of the former presidents of the miners' union described the situation existing in the industry after fourteen years of joint negotiation in the following words: "[This situation] only brings together and emphasizes the fact that we all recognize why it [the Interstate Joint Conference] was instituted or organized in the first place, but none of us are willing to confine ourselves directly to the object of organizing the interstate movement."[1]

The usual result of antagonism has been a compromise to meet existing conditions, with the

[1] Lewis, J. L., Proceedings of the Interstate Joint Conference of Coal Operators and Coal Miners, etc., p. 79, 1912.

miners looking forward to some time in the future when they could readjust the situation on the basis of uniformity, and the operators looking forward to a time when they could readjust it to fit in with their idea of competitive equality. But once a decision has been made and has remained in force for some time and has been found by one side or the other to be to its advantage, hope of change to a more equitable basis disappears. Everybody talks about principles, about competitive equality, about uniformity. Yet the miners want to keep all they have, and the operators, having the same human weakness, want to keep every little advantage that they have. "Business has been business in establishing [wage] rates and in any arguments between employer and employee over what the rate should be. The attempt on both sides has been to charge all the traffic would bear. There has been no measurement of work by which attempts could be made scientifically to get an equitable basis of payment."[1]

Both sides are frank to admit this fact. As one prominent member[2] of the industry expressed it:

> I recognize that there are differentials and inequalities in every district in this movement within itself and between the districts. That ought to be changed and that ought to be remedied. That condition has not been remedied since 1898, because every operator, as well as every group of miners, when it came to a question of leveling, whether

[1] Shurick, A. T., Coal Mining Costs, p. 36, New York, 1922.

[2] Proceedings of Interstate Joint Conference of Coal Operators and Coal Miners, etc., p. 228, 1912.

up or down, was unwilling to make a concession that leveled him down, and the fellow who was to be leveled up, if it was on the operators' side, was unwilling to take the matter up here for fear he would have to be leveled down. That is the proposition. We might just as well state things as they are as conceal them.

The difficulties are even more accentuated by the disorganized condition of the mine owners. They have neither a unified organization nor a uniform labor policy. The result is that one group of operators, in order to keep an advantage they already have, will insist on one policy for their district while another group will insist on another. In 1920 one saw the operators of northern West Virginia insisting before the U. S. Bituminous Coal Commission that the wage increase of that year be made on the percentage basis, for on that basis their costs would not be very considerably increased; while the operators of other districts, finding that a flat increase of a given number of cents would yield them a greater advantage, opposed the contentions of their northern West Virginia competitors.

The result is that inequalities and inconsistencies tend to become institutionalized. Occasionally, when one side or the other finds itself in a strong strategic position it forces upon its opponents the adoption of its own conception as to what the rate structure should be. Still more confusion results when one district or one class of labor finds its wage rates adjusted according to the principles of the union and another according to the principles of the operators. Consequently a complicated labyrinth,

frequently without either rhyme or reason, has developed and has given rise to absurd and contradictory adjustments such as those cited.

The impartial observer becomes impressed by the complicated and contradictory nature of the wage system in the coal industry. If we are particularly optimistic observers we may agree with Mr. Penna,[1] one of the founders of the Interstate movement, that "The one general idea all the way through is that while we have differences in our respective States constituting this competitive district, after all, the earnings of the miners and the competitive ability of the operators in normal times are as nearly properly arranged as men with such conflicting interests could be expected to arrange them." If we are less optimistic, we shall probably be inclined to doubt and to wonder by what "invisible hand" this happy result is achieved; for the visible machinery by which rates are established and the data with which it works seem inadequate for the task.

If there is to be any approach to uniformity and system in the wage-rate structure in the industry the present haphazard manner of adjustment will have to be eliminated. Rates will have to be adjusted according to one basis or another and changes will have to be made along lines similar to those herein suggested. Moreover, adjustments will have to be made for the relative differences in the amount of irregularity of operation which

[1] Penna, P. H., Transcript of Proceedings: U. S. Bituminous Coal Commission, vol. 2, p. 97, 1920.

characterize not only the individual districts but also the individual mines within each district. This factor is one of the most important of the considerations which affect not only the miners' earnings but also the operators' production costs. Yet provision for it has never been specifically made in the wage agreement.

Possibly the modifications necessary to make the system logically consistent can not be put into practical effect. If such is the case it merely proves that the bases of wage-rate determination are not amenable to logical adaptation, and that the principles which guide wage negotiation in the coal industry will have to be radically modified—or perhaps that an entirely new set of principles will have to be adopted.

CHAPTER XI

THE NONUNION COAL FIELDS AND THE PRESENT RATE STRUCTURE

The essential features of the wage-rate structure which prevails in the organized bituminous coal fields have been described in the preceding pages. A general lack of unity pervades the entire structure and everywhere the results of trading and compromise are evident. Among the essential features which have been discussed the following stand out as worthy of emphasis:

1. The pick-mining rates vary even as between those districts where conditions are fairly uniform and frequently the same rate is paid to pick miners working under widely differing conditions.

2. The differentials between thick and thin veins are characterized by inequalities that are the outgrowth of conditions which prevailed locally in the past—conditions which in many instances no longer exist.

3. Machine differentials vary from district to district and from subdistrict to subdistrict, the determining factor being the relative bargaining strength of the operators and the miners.

4. Dead-work and deficiency rates do not show even an approximation to consistency. Standards

vary between districts, between subdistricts, and between individual mines in the same subdistrict.

5. Only in the day rates for inside labor does one find a close approach to uniformity. Even here, however, significant variations prevail.

6. Rates for outside day men, owing to the absence of complete union control, show an irregularity almost as great as that which characterizes the dead-work and deficiency rates.

To a very large degree the present wage-rate structure in many of the districts is little more than the crystallization of the system of rates that happened to be in effect when the United Mine Workers first gained recognition. Consequently, all sorts of maladjustments prevail—maladjustments that have made for inequalities not only between different union districts but also between different mines in the same district. The existence of these inequalities is recognized by both the miners and the operators, but attempts to remove them have been opposed in the past, now by one side, now by the other. Both sides have feared that some past gain might be lost if mere trading strength were supplanted by a well-ordered system of rates—a system which was based upon a scientific analysis of the work to be done and the conditions which surround the individual jobs at the different mining centers.

It is questionable, however, whether the mere elimination of the selfish short-sighted attitude which characterizes both parties to the wage agreement would in itself entirely remove the irregu-

larities in the wage-rate structure. Even if both sides were inclined to approach the problem of rate adjustment in an impersonal way, it is doubtful whether an equitable system of wage rates could be practically put into effect. Maintaining a given wage scale in many districts is dependent not only on the operator's ability to meet the competition of other organized districts, but also on the extent to which he can meet the competition of the nonunion coal fields.

Indeed, we find in the existence of the nonunion coal fields one of the chief obstacles to making effective the union rates which already prevail. If any attempt is to be made to bring the prevailing chaotic wage structure into a coherent form it can not to any degree be successful without first reckoning with the nonunion operations. The part played by the nonunion fields in the present scheme of rate adjustment and their importance in the eyes of both the union operators and the union miners will be discussed in the following pages.

The nonunion coal districts center primarily in the southeastern fields and in certain parts of Pennsylvania. They are found for the most part in West Virginia, eastern Kentucky, Alabama, and Tennessee, and in the Somerset and Connellsville section of Pennsylvania. Their combined annual production today approximates 40 per cent of the total output of the country. The larger portion of this output comes from the newer fields of West Virginia, whose coal resources are among the best in the United States. The superior quality of this

coal and the ease of access to the coal seams (most of the mines are drift mines) have given to the West Virginia operators a competitive advantage over operators in other fields.

Nonunion operators claim that their natural competitive advantage would be lost if they were to become parties to a joint agreement. This is because the union, in order to make more equal the opportunity for employment, would raise the wage rates in the newly organized fields to an extent which would offset the advantages now accruing to the operators from the better conditions in their field. Accordingly they have persistently fought off every attempt on the part of the union to gain a foothold in their territory. They have gone so far as to claim that the interstate joint contract is a part of a conspiracy entered into between operators and miners in 1898 to unionize the coal mines of West Virginia "in order to raise the cost of production of coal in West Virginia to such a point that it could not compete with the coal produced in the Central Competitive territory."[1]

This contention has been set forth in numerous suits in various courts of the country, and attempts to organize West Virginia have been held to be conspiracies and unlawful. Injunctions have been issued by the Federal courts restraining the United Mine Workers of America from using funds collected from their membership in the Central Competitive Field for organizing West Virginia. At the present

[1] Statement to the United States Coal Commission, by the Nonunion Operators of southern West Virginia, p. 8, Jan. 12, 1923.

moment (autumn of 1923) the International Union is virtually prohibited by a temporary injunction from engaging in any organizing activities in most of the West Virginia coal fields. Progress by the union is still further impeded by a requirement of the nonunion operators which compels all of their employees to sign a contract in which they agree not to join any labor organization without the consent of their employers. Attempts by the union to get such employees to join its organization thus become illegal acts, for such actions have been interpreted by the courts as endeavors to have the miners break their contracts. These legal expedients have been of considerable aid in enabling the nonunion operators to keep outside the range of the collective wage agreement.

The absence of union interference has left the nonunion operators free to fix for themselves the wage scale paid to their employees. Each mine is free to have its own individual wage scale; and individual bargaining predominates. Although there is an approximation to a uniform wage policy secured through informal conferences of the nonunion operators of the various districts, there is no definite system of standard rates for the different types of labor. In many individual mines there are not even any standard rates for a given class of work; in some of them each laborer makes his own bargain with the mine official, and his rate is in large part determined by his individual bargaining power.

This system of wage-rate determination has proved very effective in making even more advantageous

the already naturally favorable position of the nonunion operator. In times of brisk demand, to be sure, he must approximate the rates paid in union fields. In periods of slack demand and limited employment, however, he has virtually a free hand in fixing the rates paid to his labor force. Consequently he can lower his rates and incidentally regulate his production costs to fit in with varying market conditions. That is to say, he can compel his labor force to bear a considerable portion of the burden of falling prices.

The course of nonunion rates during the past ten years clearly illustrates this condition. Only five changes were made in the pick-mining rates of the organized fields from 1912 to 1923 against from eight to thirteen in the nonunion mines of West Virginia. In 1920 two rate changes were made in many of the nonunion mines of West Virginia, followed by a third in 1921; and in 1922, some of these mines changed their pick rates as many as four times.[1] In the union fields, on the other hand, the pick-mining rates fixed in the spring of 1920 have remained virtually unchanged to date.

Rates for day labor employed in nonunion mines have undergone changes much like those made in the pick-miners' rates. During 1921 and 1922 some nonunion mines in West Virginia made decreases which varied from 30 to 51 cents per hour,[2] while Alabama operators cut their rates to $2.00 and $3.00 for a nine-hour day. In September, 1921,

[1] Fisher, W. E., Wage Rates in the Bituminous Coal Industry: Rept. U. S. Coal Commission, p. 30, 1923

[2] Idem, p. 50.

the operators of the Winding Gulf district of West Virginia met the exigencies of an inactive market by cutting their wage rates for inside day labor by about 20 per cent. With the continued fall in price in the autumn and winter of 1921 production costs were further decreased by cutting day rates by 25 per cent more. During this period the going rate for inside day labor in the neighboring organized sections of West Virginia (District No. 17) remained unchanged at the level of 1920–21; namely, $7.25 per day. With the cessation of the national strike in August, 1922, and the consequent pressing demand by the union operators to meet the unfilled coal requirements of the country, the nonunion operators of the Winding Gulf district were compelled to raise their wage rates back to a level approaching that in the union fields. Only in this way could they keep intact their labor forces.

DAY RATES PAID TO INSIDE LABOR IN THE NONUNION WINDING GULF DISTRICT OF WEST VIRGINIA, 1920–22 *

	Sept. 1, 1920	Sept. 1, 1921	Jan. 1, 1922	Aug. 16, 1922
Machine runners	$7.58	$6.08	$4.68	$7.58
Trip riders	6.92	5.55	4.10	6.77
Drivers, 1 mule	6.72	5.40	4.15	6.65
Tracklayers	7.37	5.92	4.55	7.37
Timbermen	7.37	5.92	4.10	7.05
Bratticemen	7.37	5.92	4.10	7.05
Unclassified day labor	6.64	5.33	4.10	6.60

* Day Wage Scales, Winding Gulf District, 1909–1923; Compiled by the Winding Gulf Ass'n, Beckley, W. Va., Aug. 16, 1922. During the period covered in the table the going day rate in the union coal fields for all crafts other than machine runners included in this table ranged from $7.25 to $7.50.

A similar situation prevailed in the unorganized districts of Pennsylvania, where reductions ranged from 25 to 32 cents per hour. In many of the mines the reduction in day rates brought the wage scale back to what it was at the end of 1917.[1] In the latter part of 1922 the high price of coal and the need for miners in all the coal fields resulted in a general increase in wage rates throughout the nonunion area. In many places the increases awarded entirely offset the decreases which had preceded.

Operators who are parties to the joint agreement maintain that conditions in the nonunion districts make of competitive equality a mere fetish. They contend—and not without justification—that the competitive power of the nonunion operator which results from his ability to cut wage rates during periods of slack demand is a menace. Even as far back as 1898 the fact that West Virginia was not represented in the Interstate Joint Conference was looked upon as the one factor most likely to break up the system of joint agreements. With succeeding years the competition of the nonunion districts has become most threatening to the continuance of the wage-scale agreements; and the failure of the United Mine Workers to organize several of the important coal fields of the country has time and again caused complaints by the union operators in the Interstate Joint Conference.

In so far as the differentials between mining areas are systematically applied, those mine owners who operate under the Joint Agreement have a more or

[1] Fisher, W. E., ibid., p. 50.

less equal competitive position. That is, the competitive position of the union operator is partly protected against other union operators. But, in the market, both as individuals and as a group, they are often at the mercy of the nonunion operator.

Past experiences have taught the operators in the organized fields that, in periods of fairly good demand for coal and mine labor, wage increases granted in the Central Competitive Field and the outlying districts will be reflected in the wage rates paid in the unorganized fields. Indeed, it frequently happens that when there is any definite assurance that rate increases are to be made in the union districts, such advances are anticipated by the nonunion operators. Accordingly, nonunion rates sometimes go up several weeks before those in the organized districts. When slack periods arrive, however, the nonunion operators generally lower their wage rates. Consequently they can continue to produce and sell coal at lower prices, their labor force bearing a large part of the burden of these lower prices. The union operator, on the other hand, must continue to pay the established rates irrespective of the price he can get for his product. If he happens to dispose of his coal in a market which is affected by nonunion competition, he must lower his prices or shut down operations. Usually he does the first and then the second. The result has been that the nonunion fields have made tremendous inroads upon the markets of the organized operators.[1]

[1] Twenty years ago the coals of Hocking Valley, Fairmont, Pittsburgh, and eastern Ohio were regularly quoted on the Chicago

It is this state of affairs which has, in recent years, caused the operators of southern Ohio and western

market. Today Pittsburgh has entirely withdrawn from the Chicago market, and the other coals mentioned are represented only by occasional shipments. In 1898, of the coal shipped up the lakes, 86 per cent originated in the union districts of Pittsburgh and Ohio. In 1913 their share had dropped to 67 per cent.

In 1898 southern West Virginia shipped to the lakes only 40,000 tons, or less than 1 per cent of the total. In 1913 its contribution ran over 6,000,000 tons or 23 per cent of the total. Nonunion eastern Kentucky first broke into the lake trade in 1909 with shipments of 8,000 tons; since then, its share has increased by leaps and bounds until in 1921 the district supplied 2,600,000 tons.—*Tryon, F. G., Competitive Conditions and their Effect on Labor Relations in the Coal-Mining Industry: Coal Review, vol. 7, no. 22, p. 12, Nov. 28, 1923.*

The following quotation is pertinent:

"The one great cause of irregular operation in the union fields is the ability of the nonunion fields to produce coal at a lower cost than the union mines. Their business is more profitable and moreover is always profitable, made so at the expense of the wage schedules. This fact has tended to increase the development of the nonunion fields more rapidly than the country required. It will continue to cause overdevelopment in the nonunion fields so long as the union is able to maintain a wage schedule so much higher than the nonunion wage schedules as to insure nonunion mines a profit. . . . It is important, however, that the United Mine Workers of America should understand that unless they are able to establish conditions in the union fields of this country where the coal operators and the coal miners in such fields can compete for the business of the country upon a fair basis with the coal operators and coal miners of the nonunion fields, any continuation of the present basis means ruin to many union coal operators and continued idleness to thousands of union coal miners during the coming year. . . . Nonunion operators competitive with and contiguous to central Pennsylvania have already cut wages 25 to 35 per cent. The reduction as made, affects a large volume of tonnage, probably five to six million tons per annum. More reductions, in our opinion, will follow in the nonunion fields, the day when union coal operators have been safely signed, sealed and delivered by another agreement."—*Bulletin*

Pennsylvania to oppose the Central Competitive Field plan. Both of these districts immediately adjoin the nonunion fields and their coal is sold in direct competition, in the same markets, with nonunion coal. During 1921 the nonunion fields reduced wages very substantially, and the operators of the adjoining union districts could not produce coal at the then existing wage scale in competition with nonunion coal. Accordingly, the operators of southern Ohio and western Pennsylvania "felt that they must without restriction or limitation of any character make their own agreement with their own men in their own district."[1] This fact, perhaps, more than any other, explains the failure of the Interstate Joint Conference to meet in 1922. In it, too, lies in large part the explanation for the strike of that year.[2]

The United Mine Workers have always realized the significance of such important unorganized fields as West Virginia, central Pennsylvania, Alabama, and Tennessee. They have always been aware of the fact that their success in negotiating with the ope-

of the Central Pennsylvania Coal Operators' Association as quoted in Coal Age, vol. 25, no. 1, p. 30, Jan. 3, 1924.

[1] Ogle, A. M., Testimony, Investigation of Wages and Working Conditions in the Coal-Mining Industry: Hearings on H. R. 11022 before Committee on Labor, House of Representatives, 67th Cong., 2d sess., p. 140, 1922.

[2] In addition to competition from nonunion coal, the bituminous operator must make provision in fixing his price for competition from steam-size coal, a product of the anthracite mines. This coal is a by-product left over after the domestic sizes of anthracite have been sorted out. Consideration of such competition has been frequently urged by the operators during wage-scale negotiations.

rators of the organized fields was dependent upon forcing into line the operators of the nonunion districts. Accordingly, the International Union has for a quarter of a century centered its activities upon the organization of the nonunion fields. The bulk of the union's funds has been expended in extending and maintaining the organization in the poorly unorganized districts; in a single year (1921) the union spent $3,128,924 for this purpose.[1]

The need of organizing the nonunion fields has resulted in the dissipation of the union's energies and resources. This need, too, has developed a spirit of militancy in the officers of the organization. Frequently they have encountered armed force in their efforts to bring the unorganized fields under union jurisdiction and they have countered with similar weapons. Moreover, attention, time, and money which might otherwise have been devoted to the education and enlightenment of the rank and file, to the betterment of the extra-industrial conditions and to the formulation and enforcement of a long-time broad and constructive social policy have been spent in extending the union's organization and in fighting in the courts the many obstacles which have been placed in their way by the nonunion operators. Legal fees, alone, represented an expenditure [2] of $323,582 by the United Mine Workers in 1921.

The unorganized fields in all probability will remain a vexing problem to both the union operators

[1] Suffern, A. E., Industrial Relations in The Coal Industry; Chap. II. (In preparation.)

[2] Idem. This expenditure includes fees to lawyers and experts for presenting the case of the miners before various official commissions and committees.

and the union miners. The operators in the unorganized fields are not in the slightest degree disposed to yield to the miners' union. What the results of a capitulation by the operators would be is entirely problematical. Indeed, the question as to the desirability of universal organization in the coal industry —at least as it is now administered by both the operators and the union leaders—is by no means settled. It involves many considerations, among the most important of which is the desirability of having a labor monopoly in an over-developed, highly competitive, basic industry. The very possibility of having our coal supply completely shut off in times of strike makes complete organization a somewhat dangerous expedient—at least until we have a greater degree of governmental supervision over the industry.[1]

Eliminating complete organization, a solution of the nonunion problem may possibly be found in either of two alternatives. These are (1) a system of minimum rates for all districts irrespective of whether the union is recognized or not; and (2), a system of sliding scales for those union districts which have to meet nonunion competition.

Minimum Wage Rates.—A system of minimum wage rates for all mining districts could be put into effect only through a voluntary agreement among the operators of all fields. It would provide for a minimum rate below which the nonunion operators could not go in times of market depression. That is to say: The operators in the unorganized districts

[1] For a more complete discussion of the pros and cons of universal organization in the bituminous coal industry, see Suffern, A. E., ibid.

would no longer be able to cut their production costs through the periodic lowering of the wage rate. Consequently they would no longer be able to dominate the market in dull periods at the expense of their competitors in the organized fields. Periods of market depression, instead of primarily affecting the union fields would spread in true competitive fashion over the entire industry.[1] Whatever business was available would be distributed among the union as well as the nonunion fields. At the same time the urge to organize the nonunion fields would in part be checked. The need for complete organization to protect the union wage scale would no longer serve as a stimulus for union activity in the non-organized fields and the nonunion operator would in part be freed from the ever-present fear of having "outsiders" encroach on his "natural right" to manage his properties as he sees fit.

In adopting a system of minimum wage rates for the bituminous-coal industry many difficulties other than the strenuous opposition of the nonunion operators would have to be overcome. Such difficulties, however, would be of a technological nature—such, for example, as would be involved in providing for varying natural conditions between different districts, subdistricts, and individual mines. These difficulties, however, would be surmounted once the will to overcome prevailed. But this will to overcome will not come into being until the opposition of the nonunion operator to such a plan has been surmounted.

[1] Hinrichs, A. F., The United Mine Workers of America and the Nonunion Coal Fields, New York, p. 187, 1923.

Sliding Wage Scales.—A system of sliding scales in the organized fields designed to meet nonunion competition would, on the other hand, be strenuously opposed by the miners' union. It is hardly conceivable that any system of collective bargaining could make provision for meeting in its entirety the competition of nonunion producers. In the organized districts of Kentucky and West Virginia, to be sure, the situation in the adjoining nonunion fields is taken into consideration through a lower wage rate. But even in these districts the present rate structure is an outgrowth of a condition which existed in years past when the union, because of its desire to get a foothold in them, consented to the system of rates which was then in existence. That is to say, the union at the time took the best it could get. Ever since then, however, it has been striving to change these conditions.

Any attempt by any labor organization to make adjustments to meet nonunion competition would ultimately lead to disastrous results. In effect, it would be "mortgaging the future for a temporary gain."[1] The employers in nonunion fields can obtain concessions from their workers which the union operator can not. Any cutting of wage rates in the organized districts could be offset by still lower rates in the nonunion fields. Indeed, if the nonunion operators succeeded in reducing rates to a point where the miner could not earn a wage sufficiently high to give him a decent living, the organized districts, in order to meet nonunion competition, would have to do likewise. In short, if adjustments were

[1] Ibid., p. 185.

made to meet nonunion rates, nonunion conditions would automatically become the standard in the industry, as contrasted to the present situation where the union standard is the influential factor.

From all appearances, then, we may look forward to a continuation of the present chaotic wage-rate structure. Trading and compromise rather than a scientific analysis of the work to be done will in all probability continue as the basis of rate making in the organized fields. In the nonunion fields wage cuts and wage increases may be looked for with every significant fluctuation of the market. And with it all one may expect a continuation of the unstable labor conditions which prevail in the bituminous coal industry—an instability which can not be eliminated so long as the organized workers and union operators must cope, not only with local rate adjustments but also with a competition which is based not so much on the relative efficiency of the competing operator groups as on the power of one of the groups to control the wage rates it pays to its labor. Such is the price we must pay if we will to keep the United Mine Workers out of the unorganized fields. Whether this is too high a premium for insurance against a labor monopoly which might possibly [1] at some future time shut off our coal supply is entirely a matter of personal judgment.

[1] It might be added in passing that students of labor have pointed to the history of the railroad brotherhoods as evidence that there is a direct relationship between the approach to a labor monopoly and the use of circumspection and care in the exercise of power.

PART IV

THE WAGES SYSTEM, COAL PRICES AND COAL CONSERVATION

CHAPTER XII

THE COURSE OF WAGE RATES AND THE PRICE OF COAL

A description of the machinery for rate making in the bituminous-coal industry, an analysis of the principles which presumably guide the adjustment of rates, and a survey of the prevailing rate structure form the basis of discussion in Parts I, II, and III. In Part I the discussion centered about the Central Competitive Field, the Interstate Joint Conference, and the theory of rate making which is supposed to underly the rate structure. Part II concerned itself with a detailed description of how the various wage rates are in practice made. Particular attention was given to (1) the basic pick rates, (2) the freight differential, (3) the thin-vein differential, (4) the machine differential, (5) the rates for inside day labor, (6) the rates for outside day labor, (7) dead-work and deficiency rates, and (8) the rates paid in the outlying districts. How these rates have fitted in with the theory of competitive equality which supposedly guides the negotiation of wage rates; the illogical adjustments that have arisen; and the difficulties that stand in the way of eliminating the prevailing inequalities were passed in review in Part III.

Thus far our general conclusion has been that the

principles adopted for adjusting wage rates have not in any large measure served the purposes for which they were originally intended. The interstate agreements, to be sure, have eliminated the cut-throat competition which characterized the bituminous industry in the eighties and nineties of the last century. In those days competition almost universally took the form of competitive wage cutting. "The operator sold his men rather than his coal." And industrial strife and chaos were the rule rather than the exception.

Since the inauguration of the interstate agreement labor troubles have taken on a new aspect. Local disturbances, to be sure, have occurred in many of the fields; in some of the fields very frequently. These disturbances, however, have usually been the result of local difficulties and have time and again been condemned by the international union. There has, however, been no major tie-up in the bituminous industry during the life of any single contract. The only two national tie-ups in the industry since 1898 (the strikes of 1919 and 1922) took place after the expiration of the contract period.[1] Indeed, the union's insistence on con-

[1] The strike of 1919, it has been said, was in violation of a contract entered into between the operators and the miners in November, 1917. This contract was to have been continued for the period of the war, but provision was made that its life was not to exceed two years from April 1, 1918. The United Mine Workers, however, claim that the strike of 1919 was not in violation of their contract, for at the time of calling the strike not only had the war in fact been concluded but all war-time control of the coal industry had been removed.

formity to contracts has frequently kept the labor force of an entire district at work during periods of national strike. In 1921, for example, the miners and operators of western Kentucky (District No. 23) made a contract which was to continue for two years with an expiration date of April 1, 1923. During the nation-wide strike of 1922 the international union insisted that this contract be adhered to. It compelled its members to remain at work in the union mines of western Kentucky and it allowed the output of these miners to be shipped into the market in spite of the fact that such coal added to the difficulty of making the national strike effective.

This condition of relative stability has not been without cost to the coal industry and to the consuming public. The wage-rate structure which has made possible the collective agreement has had an effect upon all who are interested in the bituminous industry. It has a bearing on the income of the coal miner, the cost of mining, the development of our mining capacity, and the conservation of our coal resources. The prevailing wages system with its machine, freight, and thin-vein differentials raises issues of far-reaching importance—issues on the outcome of which may depend our attitude toward future wage adjustments. Accordingly, it will be our purpose in Part IV to appraise the results of the wage-rate structure in the bituminous-coal industry and to see how the system of rate making has affected: (1) the movement of wage rates in the bituminous industry; (2) the price of

coal; (3) the development of machine mining; and (4) the exploitation of our coal resources.

The present chapter will concern itself with the first two of these issues: I. the movement of wage rates; and II. Rate advances and the price of coal. The chapters following will attempt to assess the result of the system of differentials now in effect, particularly with a view to determining its bearing on (1) the installation of machinery; (2) the cost of mining; (3) the economic conditions in the bituminous industry at the present time; and (4) the waste of our coal resources.

I. THE MOVEMENT OF WAGE RATES

After considering the variations in the wage rates paid in the different districts it becomes evident that the wage-rate system in the bituminous-coal industry has brought about results which are not entirely equitable to the miner. These inequalities, however, may in part be compensated by a higher general level of wages in the industry. That is to say: if the machinery for collective bargaining and the theory of competitive equality (in so far as it has been applied) have resulted over a period of years in advancing the miner's wage rate proportionately faster than the wage rates in other industries, then the injustice caused by the inequitable rates may have been partly abated. One is led to inquire therefore as to how the wages system has affected the course of wage rates. How, too, has the movement of rates in the bituminous industry

differed from that in other organized industries where rates are adjusted in a different manner and according to different principles? Has the system of freight, thin-vein, and machine differentials affected the rates paid to coal labor sufficiently to make their course during the last twenty-five years different from that followed by rates in other industries?

Advances in the basic pick rates in the Central Competitive Field ranged from 137 to 170 per cent during the twenty-two years ending 1920.[1] During this period the tonnage rates for pick miners at the Indiana and Illinois basing points were advanced from 40 cents to $1.08, or 170 per cent. The Hocking Valley rates were increased by 137 per cent, and the Pittsburgh basing-point rates were advanced by 161 per cent.[2] (See fig. 2, p. 233.)

The average wage rate for labor as a whole in the United States rose from a base of 100 in 1898 to 339 in 1920. This latter figure applies to rates prevailing in the summer of 1920 and represents what was probably the wage peak for the entire period.[3] The larger part of this rise was due to wage advances granted after 1916. Prior to that year the level of pick-mining rates tended to be slightly higher

[1] For detailed tonnage rates and an index of the rates at the different basing points, see Appendix D.

[2] The index number for machine rates shows a larger relative advance than does the index for pick rates. This is due to the fact that the base used is smaller than that for the pick-mining rates while the actual increase in the rates is the same for both.

[3] Monthly Labor Review: U. S. Bur. of Labor Statistics, vol. 12, no. 2, p. 74, 1921.

INDEX NUMBERS OF WAGES PER HOUR FOR LABOR IN GENERAL IN THE UNITED STATES AND OF TONNAGE AND DAY RATES IN THE BITUMINOUS-COAL INDUSTRY, 1898–1920

(1898 = 100)

Year	Labor in General		Tonnage men [c]	Day men [d]
	U. S. Dept. Labor index [a]	Douglas-Lamberson index [b]		
1898	100	100.9	100	100
1899	101	102.4	100	100
1900	105	106.8	122	120
1901	107	108.7	122	120
1902	112	112.9	122	120
1903	116	117.2	137	135
1904	116	118.2	130	127
1905	119	120.0	130	127
1906	123	125.1	130	135
1907	129	131.2	130	135
1908	129	131.6	130	135
1909	130	133.4	130	135
1910	135	137.0	145	142
1911	137	139.8	145	142
1912	140	145.9	152	149
1913	145	149.6	152	149
1914	148	153.1	152	149
1915	149	152.5	152	149
1916	160	164.5	160	157
1917	185	167.0	185	189
1918	234	211.3	210 [e]	263 [e]
1919	266	(i)	237 [f]	300 [f]
1920	339	(i)	270 [g]	356 [g]
				395 [h]

[a] Monthly Labor Review: U. S. Bur. Labor Statistics, vol. 12, no. 2, p. 74, Feb., 1921.

[b] American Economic Review, vol. 11, no. 3, p. 415, 1921.

[c] Screen mine-run rates at Illinois and Indiana Bituminous points.

[d] Day rate for tracklayers, timbermen, etc.

[e] Agreement of November, 1917.

[f] Garfield award, November, 1919.

[g] U. S. Bituminous Coal Commission award, April, 1920.

[h] August, 1920, agreement.

[i] No data available.

than the general rate level. The large increases granted to industrial labor during the war period soon reversed this relationship, however, for the advances given to the miners after 1916 were neither as frequent nor as large as those granted to labor in other industries. Consequently the miners of the organized districts found themselves at the peak of the rate period with a rate, which when compared to the 1898 level was from 21 to 30 per cent lower than the general wage rate for the country as a whole. Indeed the advances in tonnage rates granted to the miners at the Illinois and the Indiana Bituminous points during the six years ending 1920 amounted to but 77 per cent of the 1913 (pre-war) rate. In contrast, the union rates for some 90 different crafts in 66 important cities of the country more than doubled during this same period.[1]

Even the readjustment of wage rates during the depression of 1921–22 did not bring the wage rates for union labor in general down to a level relatively as low as that of the pick miners in the soft-coal industry. May 15, 1922, found the index number for organized labor in the United States at 193 as compared to 100 in 1913 (the pre-war year) while the tonnage rate for pick miners at the Illinois and Indiana basing points stood at 177. The wage agreement of 1923 kept the pick rate at the level of 1922, while the average rate for organ-

[1] Union Scale of Wages and Hours of Labor, May 15, 1921: U. S. Bur. Labor Statistics Bull. 302, p. 17, 1923. See also Appendix D, p. 296.

ized labor in other industries reached a level 111 per cent higher than that of 1913.

INDEX NUMBERS OF WAGE RATES FOR GENERAL ORGANIZED LABOR AND OF TONNAGE RATES FOR PICK MINERS AT ILLINOIS AND INDIANA BASING POINTS, 1913–1922 *

(1913 = 100)

Year	Organized labor in general [a]	Tonnage men
1913	100	100
1914	102	100
1915	103	100
1916	107	105
1917	114	121
1918	133	138
1919	155	138
1920	199	177
1921	205	177
1922	193	177
1923	211 [b]	177

* Rates are as of May 15 for each year. Base year, 1913.

[a] This index number is based on the wage rates paid to some 900,000 members of organized trades in 66 of the principal cities in the United States. *Union Scales of Wages and Hours of Labor, May 15, 1922: U. S. Bur. Labor Statistics, Bull. 325, p. 19, 1923.*

[b] Monthly Labor Review: U. S. Bur. Labor Statistics, vol. 17, p. 1332, 1923.

In 1920 the day workers in the organized coal fields were in a much better position than the pick and the machine miners. Prior to 1917 changes in their wage rates were made on a percentage basis, the rate of change being equal to that of the tonnage men. Consequently their rates followed the same course as did those of the miners.[1] In April, 1917,

[1] For detailed inside rates paid and for index numbers of inside rates, see Appendix E, p. 297.

however, this practice was changed, and a flat 60 cents advance was granted to day and monthly men. This equalled a 20-per cent advance as compared with an amount equalling 15 per cent granted to pick and machine miners. In November of the same year the company men were given a further advance of $1.40 per day, or 39 per cent, as compared with an advance equal to only 13.5 per cent granted to machine and pick miners. The award of the U. S. Bituminous Coal Commission in 1920 added $1.00 a day or 20 per cent more to the rate for company men. The miners were given an increase of 24 cents per ton, or approximately 29 per cent more than the old rate. The United Mine Workers "protested against the $1.00 a day award on the ground that it was inequitable and placed the day workers at a marked disadvantage with the tonnage men."[1] The dissatisfaction with this award led to a series of strikes in Illinois and Indiana which culminated in a joint conference at Cleveland in August, 1920. At this conference the wage rate for company men was increased by $1.50. This advance brought the general day rate up to $7.50.

Day rates, then, were increased by 150 per cent in the forty months ending in August, 1920, while tonnage rates were advanced by an amount equal to less than 50 per cent of the 1916 rates. Compared to the basic rate of $1.90 fixed for track layers and timbermen in 1898, these men have enjoyed an

[1] Lewis, J. L., Testimony, Investigation of Wages and Working Conditions, etc.: Hearings on H. R. 11022, before Committee on Labor, House of Representatives, 67th Cong., 2d sess., p. 248, 1922.

increase equal to 294 per cent of the original rate fixed by the Interstate Joint Conference. (See fig. 2.) This advance was about 16 per cent greater than the average advance for labor as a whole.

The large increase given to day men made their actual hourly rates approximately equal to the rates paid to organized labor in other industries. Company day men are on an eight-hour basis, and a day rate of $7.50 gives them an hourly rate of 93.75 cents. This rate is paid to the majority of company men, among whom are included track layers, cagers, trip riders, drivers, timbermen, wiremen, motormen, carpenters, etc. In the railroad shops, where there is an approximately uniform rate for all localities, the rate for general blacksmiths on May 1, 1921 (in the midst of industrial depression) was 85 cents an hour. The same rate applied almost universally to boiler makers, coppersmiths, machinists, iron molders, and sheet-metal workers in the railroad shops.[1] By May, 1923, this rate had been cut to 77 cents. In the building trades the predominating hourly rate for inside wiremen on May 15, 1923, ranged in most of the cities of the country from 85 cents to $1.25; bricklayers were getting from $1.00 to $1.50 an hour; and carpenters' rates averaged about $1.00 an hour. The hourly rate for plasterers ranged from $1.00 to $1.50, and plasterer's laborers were paid from 75 cents to $1.25. Hod carriers were receiving over

[1] Union Scales of Wages and Hours of Labor, May 15, 1922: U. S. Bur. Labor Statistics Bull. 325, pp. 125–155, 1923.

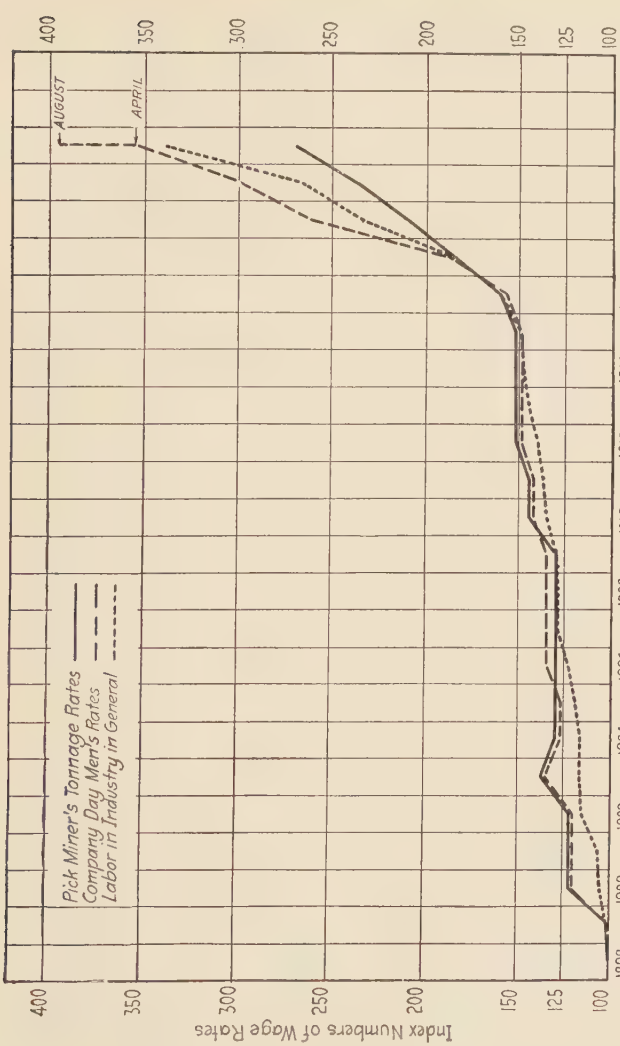

FIG. 2.—WAGE RATES COMPARISONS.

75 cents in the majority of cases, with two cities paying 60 cents and three paying $1.00.[1] The average hourly rate for all organized labor at this date was 95.2 cents.

The advance of 164 per cent granted to company men since 1913 has done little more than to give to this class of labor an hourly rate which approximates the rates paid in other organized industries. Advances to tonnage men, on the other hand, have lagged behind those made to organized labor in general. When compared to their position in 1913, tonnage men today have a wage scale which is relatively lower than that which prevails in other organized industries. Evidently then the peculiar theory of rate making and the machinery for arriving at wage rates in the bituminous-coal industry has had little effect on the movement of wage rates. It has not brought about tonnage-rate advances that are of sufficient size to offset the inequalities that prevail between districts, nor has it given to the day workers a rate which is in any degree higher than is paid to other organized laborers. In view of conditions in other organized industries we may perhaps justifiably say that any other machinery for adjusting wage rates might have brought about a level of rates in the coal industry quite similar to that which exists today. Rate advances that have been granted to the miner are to be attributed to the power of his organization rather than to any given wage-rate theory or rate-making machinery. It is in the growing strength of the United Mine

[1] Monthly Labor Review: U. S. Bur. Labor Statistics, vol. 17, no. 3, pp. 55–80, 1923.

Workers and the disorganized status of the coal operators rather than in any given system of rate determination that we shall find the explanation for such advantages as have accrued to mine labor during the past quarter century.

II. RATE ADVANCES AND THE PRICE OF COAL

The wage-rate changes discussed above are of interest not only because of the light they throw upon the present status of mine labor, but also because of their effect on coal prices. About two-thirds of the costs of producing coal are labor costs. Because of this fact one generally looks to wage-rate changes for an explanation of the changes in the price of coal. One is frequently led to believe that advances in prices are to be attributed primarily if not wholly to advances in wage rates and it is commonly held that a readjustment of the wage-rate structure would bring about a considerable reduction in the price of bituminous coal. Certain persons have even seen in the prevailing system of wage-rate negotiation a conspiracy of operators and miners to rob the consumer. Indeed, it was a belief of this sort that recently led a Federal Court to issue an injunction which temporarily forbade certain operators and miners to negotiate further on the Central Competitive Field basis. These beliefs and attitudes call for an evaluation of the relationship of wage-rate changes to coal prices. It will be our purpose in the remainder of this chapter to inquire into this relationship. Two phases of the problem will be considered, namely: (1) the effect of wage-rate advances on the cost of producing bituminous coal

and (2), the relation of coal-price fluctuations to changes in the wage rates.

1. Wage-rate Advances and Production Costs

Six advances have been made in the wages of bituminous-coal miners since April 1, 1914. The wage scale in effect prior to that date was continued in the contract made that year until April 1, 1916. From the former date to the present time wage advances were made as shown in the following table submitted by John D. A. Morrow, former vice-president of the National Coal Association.[1]

WAGE ADVANCES IN BITUMINOUS COAL, 1912–1923

Dates	Increase in mining rate per ton	Increase in day labor per day	Increase in yardage and dead work, per cent
April 1, 1914.....	$0.00	$0.00	0
April 1, 1916.....	0.03	0.14	5
April 15, 1917.....	0.10	0.60	0
Oct. 6, 1917.....	0.10	1.40	15
Nov. 26, 1919.....	0.11	0.66½	14
April 1, 1920.....	0.13	0.33½	13
August 16, 1920.....	0.00	1.50	0
August 15, 1922.....	0.00	0.00	0
April 1, 1923.....	0.00	0.00	0
Total.....	$0.47	$4.64	

The direct effect of rate advances (1914 to 1923) on the cost of producing coal has been estimated at from $1.40 in Ohio to over $2.00 per ton in the southwestern

[1] Morrow, J. D. A., Testimony: Hearings on S. 4828, p. 1026, 1920.

fields.[1] During this same period (1914 to 1923) the average estimated increase per ton in costs of producing coal resulting from wage rate advances was $1.70.[2]

	Cents
April 1, 1916	10
April 15, 1917	30
November 1, 1917	45
November 27, 1919	30
April 1, 1920	30
August 16, 1920	25
Total increase	$1.70

[1] Idem.

[2] It should be noted that this figure covers not only the advance in mining costs resulting from increased direct labor costs but also the advance resulting from increased costs of monthly and salaried men, whose wages do not enter into labor costs as such, but are considered as general overhead. This figure includes, moreover, the increased costs of developmental work which followed the advance in wage rates. These costs, incidentally, are not charged to current operating expenses at all, but are rather charged to the capital account.—*Hearings on S. 4828, p. 2127, 1920.*

Mr. William Green, secretary of the United Mine Workers, estimated that the increase in the direct labor costs of mining resulting from these wage advances ran from $1.17 in the Central Competitive Field to $1.62 in the Southern Appalachian Field. The weighted average for the United States was $1.28. Mr. Green's figures, which follow, are based on data secured from the U. S. Federal Trade Commission and are presented below.—*Hearings on S. 4828, p. 1167, 1920.*

WEIGHTED AVERAGE INCREASE IN LABOR COSTS, 1916-21

	Tonnage, 1917	Increase in labor cost per ton
Central Competitive Field	252,000,000	$1.17
Eastern Adjacent Field	161,000,000	1.34
Western Adjacent Field	21,000,000	1.46
Southern Appalachian Field	44,000,000	1.62
Weighted average		1.28

2. Coal Price Fluctuations and Wage-rate Changes

The relation of coal-price fluctuations to the fluctuations in wage rates and even in production costs is not very obvious. Other factors equally significant determine the course of coal prices.

For example, in contrast to those advances in production costs mentioned above, retail bituminous prices during the period considered were at one time $6.82 per ton higher than in 1914.[1] Wholesale spot prices [2] on the other hand were for a time $8.37 above the average of 1914, while the average realized price at the mine [3] for all coal produced advanced above the pre-war (1914) average by $2.59.

Retail prices of bituminous coal advanced from an average of $5.71 in 1914 to $12.53 in November, 1920.[4] With but few occasional fluctuations the prices of 1914 remained virtually unchanged until the autumn of 1916. During the next four years, in common with all other commodities, coal prices rose steadily and in November of 1920 reached their peak. Coal retailed in that month at $12.53 per ton, 119 per cent above the average price of 1914. In other words, the increase in retail bituminous-coal prices amounted to $6.82 as compared to the $1.70 increase in costs attributable to wage-rate advances. After November, 1920, the price of coal started down-

[1] See pp. 239–40.

[2] See pp. 243–46.

[3] See pp. 247–49.

[4] Retail Prices, 1913 to December, 1921: U. S. Bur. Labor Statistics Bull. 315, 1922. The prices quoted are average retail prices for some 30 different cities.

ward and fell gradually until it reached its minimum in June, 1922, when the retail price averaged $9.48. When the effects of the strike began to be felt in the summer of 1922, prices started upward again and early in 1923 reached a peak level of over $11.00. (See fig. 3, p. 240.)

AVERAGE RETAIL PRICE OF BITUMINOUS COAL FOR THE UNITED STATES, 1914–1923 *

Month	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
15th day	Average for year, $5.71	$	$	$	$	$	$	$	$	$
January		5.71	5.69	6.96	7.68	7.90	8.81	11.82	9.89	11.18
February		....	....	....	....	....	.....	11.41	9.71	11.14
March		....	....	....	....	....	.....	11.15	9.72	11.03
April		....	....	....	....	....	.....	10.58	9.62	10.46
May		....	....	....	....	....	.....	10.39	9.50	10.08
June		....	....	....	....	....	10.19[a]	10.39	9.48	10.04
July		5.44	5.52	7.21	7.92	8.10	10.55	10.47	9.49	10.03
August		....	....	....	....	....	11.04	10.47	(*b*)	9.94
September		....	....	....	....	....	12.12	10.47	11.08	9.99
October		....	....	....	....	....	12.50	10.40	11.26	10.12
November		....	....	....	....	....	12.53	10.34	11.31	10.05
December		....	....	....	....	....	12.30	10.27	11.23	

* Retail Prices, 1913, to December, 1921: Bur. Labor Statistics Bull. 315, 1923. Also Monthly Labor Review, vols. 16 and 17, 1923.

[a] Quotations for each month are not available prior to June, 1920.

[b] No quotations available because of strike.

During the period of price decline the wage rates for bituminous mine labor continued at the same level as in 1920. The end of the decline (June, 1922) found bituminous coal retailing at $9.48—a price

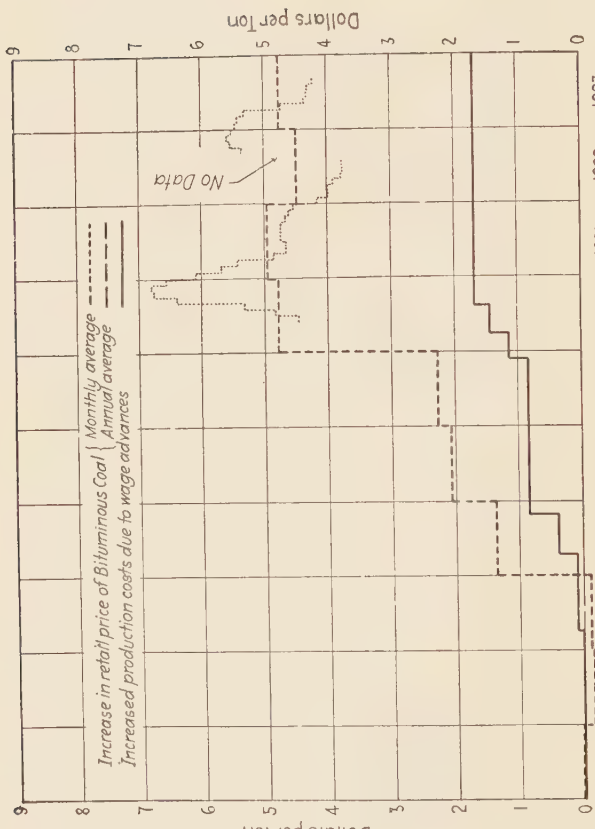

FIG. 3.—INCREASE IN AVERAGE RETAIL PRICE OF BITUMINOUS COAL OVER 1914 COMPARED WITH INCREASE IN PRODUCTION COSTS DUE TO WAGE ADVANCES SINCE 1914.

which was $3.76 higher than the 1914 average. After deducting the $1.70 which went to labor in increased rates, one finds that retail bituminous prices were still $2.06 higher than would have been warranted had wage-rate advances been the only important factor to be considered in accounting for price changes.

Other things than wage rates play a significant part in determining the price that the consumer must pay for his coal. There are freight charges, delivery charges, insurance costs, storage charges, middlemen's profits, etc. These factors, indeed, evidently played a much more important part in determining the retail price of coal up to 1920 than did labor costs, and the greater part of the price increases up to 1920 must be attributed to them rather than to the increased rates received by labor.

During the period of falling prices, too, these factors were operative and it is rather doubtful whether wage rates played as important a part in keeping up coal prices as the people generally have been led to believe. The refusal on the part of mine labor to allow itself to be deflated was no doubt of some importance in this connection, but, as has been seen, its responsibility ends when $1.70 of the price increase over 1914 has been accounted for. To place the blame for the remaining $2.06 which we had to pay over the 1914 prices, even when retail coal prices were at their lowest, we shall have to seek such causes as those enumerated above.

Wholesale prices followed an irregular course similar to that taken by retail bituminous prices. Here, too, the last ten years have witnessed price fluctuations

which were more frequent and more violent than the changes in wage rates. For a considerable period wholesale bituminous quotations were far above what any increase in labor costs would have explained, while at other times they were actually below the figure which the mine owners might have justifiably demanded.

Available wholesale prices are of two sorts: 1, spot prices; and 2, realized mine prices—average prices obtained by dividing the total selling value of all coal by the number of tons sold.[1] These last are a fairly good index of the price the mine operators of the country get for their product, and are based on both the coal sold under contract and that which appears on the open market. Spot prices are those paid for such coal as is sold on the market for immediate delivery from day to day and which is not under contract for any specific time.

Over two-thirds of our coal output is contract coal, the price for which is frequently fixed for one year. During the life of the contract these prices do not reflect changes in the spot market. Spot prices, therefore, are not an accurate index of what

[1] A variety of f.o.b. mine prices in different parts of the country reflect local market conditions and distinguish the different grades, qualities, sizes, and preparation of coal. Because of this variety of factors, it has become customary, in giving statistics of mine prices, to reduce all prices to the basis of mine-run coal; that is, the basis of the coal just as it comes to the surface from underground without any screening, sizing, preparing, or cleaning further than is given it in its initial loading into the mine cars underground. A large part of the coal which is produced in the United States is sold in just that form and the mine-run quotation is used as the basic quotation in the annual statistics of prices published by Government agencies.

the operator receives for his product. Nevertheless, next to retail prices, it is spot prices which determine the judgment of the average person. It is these prices that he hears about and sees quoted in the press.

Wholesale Spot Prices.[1]—The average spot price of coal in 1914 was $1.14 f.o.b. mines. The year following witnessed a slight decrease to $1.12. By February, 1917, spot prices had jumped to an average of $4.18. The latter figure, however, did not prevail very long, for shortly after the declaration of war by the United States the Federal Government assumed control of the industry and fixed the f.o.b. mine price of coal. This price averaged around $2.50. Consequently the average for 1917 was but $3.25. The average prices for 1918 and 1919 were $2.58 and $2.59 respectively. Spot prices, then, even during the period of government control, averaged about $1.44 more than in 1914. Labor costs had advanced by 85 cents during the same period, thus leaving 59 cents of the increased price to be accounted for by factors other than wage-rate advances.

With the wage increases of November, 1919, and April, 1920, came an advance in "spot" quotations. These wage advances increased production costs by approximately 60 cents per ton.[2] Spot prices, however, jumped from $2.58 in March, 1920, to $3.85 in

[1] From price series prepared by C. E. Lesher. His price series is the most comprehensive available and is published each week in "Coal Age." It is the accepted standard for the trade. This series is based on the weighted actual spot prices f.o.b. mines of fourteen grades of coal, which are representative of nearly 90 per cent of the bituminous "spot" output of the United States.

[2] See p. 237.

April, 1920 (an advance of $1.27) and continued upward until July, when the average of $9.51 per ton was reached. Apparently, then, in July, 1920, the mine owners were getting $8.37 per ton more for their spot coal than they averaged in 1914, while their labor costs had advanced only $1.45.

The wage advance of August, 1920, which increased coal costs by approximately 25 cents per ton, evidently had little or no effect on market prices. Indeed, spot-coal prices started to drop shortly after this increase went into effect. They reached their low point in March, 1922, when coal prices averaged $2.12 per ton. This price was the lowest quoted since 1916 and was the result of the combined forces of the industrial depression and the tremendous increase in coal production which had resulted from the anticipation of labor difficulties. In spite of falling prices the production of coal jumped to approximately 2,000,000 tons per day during the last week of March, 1922—an output larger than that of any corresponding period in the preceding five years.

On the eve of the national coal tie-up of 1922, spot bituminous coal was selling only 98 cents above the 1914 average, while production costs due to wage advances had increased by $1.70. With the bituminous shortage following a four-month shutdown of operations came another price rise, and August, 1922, saw average spot quotations at $6.13. Present spot prices (September, 1923) average $2.47 or $1.33 more than the 1914 average. (See fig. 4.)

It is quite evident that in the wholesale market, also, the system of national wage-rate increases

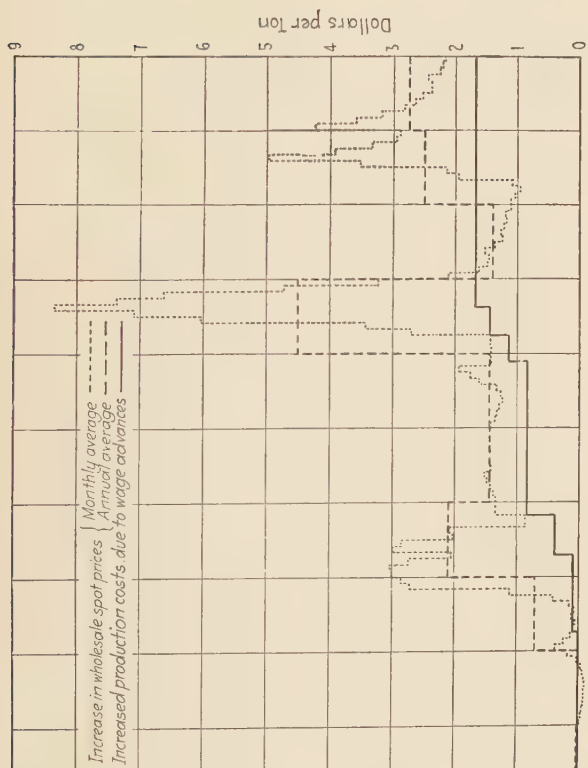

FIG. 4.—INCREASE IN AVERAGE WHOLESALE SPOT PRICES OF BITUMINOUS COAL OVER 1914 COMPARED WITH INCREASE IN PRODUCTION COSTS DUE TO WAGE ADVANCES SINCE 1914.

was not the most significant factor affecting the price of coal. The very wide margin ($8.06) by which the prevailing price in July, 1920, exceeded the price in 1914, must be accounted for by other factors than increased labor costs. During the ebb of coal prices in 1921 and 1922 wholesale spot prices fell to a point which was from all appearances as low as and in some instances even lower than the wage increases warranted. In March, 1922, when spot prices were but 98 cents higher than the average for 1914, the union operators were getting but 98 cents more for their spot coal than they did in 1914, while their direct and indirect labor costs had been advanced by $1.70.

AVERAGE SPOT PRICES FOR BITUMINOUS COAL F.O.B. MINED, 1913–1923 *

(Net tons of 2,000 pounds)

Month	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
	$	$	$	$	$	$	$	$	$	$	$
January	1.46	1.21	1.13	1.53	4.15	2.48	2.57	2.57	3.26	2.26	4.26
February	1.22	1.16	1.12	1.40	4.18	2.53	2.49	2.58	2.77	2.20	3.60
March	1.17	1.17	1.09	1.27	3.89	2.58	2.47	2.58	2.63	2.21	3.20
April	1.17	1.16	1.08	1.24	3.21	2.64	2.43	3.85	2.62	2.25	2.84
May	1.15	1.16	1.07	1.21	4.14	2.67	2.38	4.59	2.68	3.11	2.67
June	1.14	1.12	1.07	1.26	4.00	2.57	2.40	7.18	2.52	3.31	2.55
July	1.18	1.12	1.05	1.22	3.17	2.58	2.47	8.24	2.40	4.67	2.40
August	1.22	1.13	1.07	1.30	3.24	2.58	2.76	9.51	2.42	6.13	2.40
September	1.23	1.11	1.10	1.57	2.02	2.58	2.91	8.52	2.37	5.07	2.46
October	1.29	1.13	1.12	2.26	2.02	2.58	3.09	7.78	2.33	4.48	2.28
November	1.31	1.10	1.17	3.87	2.48	2.58	2.57	5.87	2.35	4.11	2.22
December	1.26	1.11	1.33	4.01	2.48	2.58	2.58	4.38	2.26	4.04	2.19
Yearly average	1.23	1.14	1.12	1.85	3.25	2.58	2.59	5.64	2.55	3.64	2.76

* Coal Age, vol. 23, no. 4, p. 190, Jan. 25, 1923.

Irrespective of the market in which we buy our bituminous coal, then, we can not look to wage-rate changes for a complete explanation of the variations in coal prices. Other factors, frequently much more vital, account for the fluctuations of coal prices—factors which can be explained only by a thorough analysis of the transportation and marketing processes employed by the industry. But it should be borne in mind that neither retail nor spot prices are an index of the actual receipts of the operator for the product of his mine. The bulk of his output is sold under contract; and prices specified in contracts may bear no relation to prevailing retail or spot prices.

Realized Mine Prices.—Prices actually realized at the mine [1] for all coal, both spot and contract, show a more stable course than prevailed in the retail and spot markets. Yet here, also, it is hard to find a close connection between wage-rate advances and price changes. Realized prices at the mine rose from an average of $1.17 in 1914 to $3.75 in 1920 and fell again to $2.89. The average for 1922 was $3.02. The average realized mine prices of bituminous coal from 1914 to 1921 were:

1914	$1.16	1917	$2.26	1920	$3.75
1915	1.13	1918	2.58	1921	2.89
1916	1.32	1919	2.75	1922	3.02

The total weighted average labor cost was $1.49 higher [2] in 1920 than in 1914. When contrasted

[1] Realized mine prices represent the average value of coal per ton as published by the U. S. Geological Survey.

[2] For method of arriving at this figure, see Appendix F, p. 298.

with the increases of $2.59 in the average realized mine price there remains $1.10 of the price advance to be explained by factors other than increases in labor costs. Evidently, here as with retail and spot prices, forces other than changes in labor costs must be considered if the level of realized mine prices in 1920 is to be explained. The same applies to an explanation of the average realized price in 1921, for in that year the average was but $2.89 ($1.72 higher than in 1914) while the average labor cost had advanced by $1.70. That is, the operator was getting only 2 cents more than he got in 1914 to pay for increased cost of the materials and supplies which he used in operating his properties. By 1922, realized prices had advanced to $3.02—$1.86 above the 1914 average. The surplus over labor costs remaining to the operator was now only 16 cents larger than in 1914. (See fig. 5.)

Coal price fluctuations are frequently to be explained by factors much more important than the changes in the miner's wage rate. During the era of rising prices the fluctuations in one could not to any large degree be held responsible for the fluctuations in the other. The same may be said for the recent period of price deflation. Past experiences show that the consumer buys little coal when reserves are large. He uses up his reserves instead of ordering from the mines, and later when he finds his reserves getting low he rushes out and bids up prices in panicky fashion.[1] In early 1916, for

[1] Indeed, "the relation between consumers' reserve and the price (of coal) is almost mathematical. A reserve below 30,000,000 tons

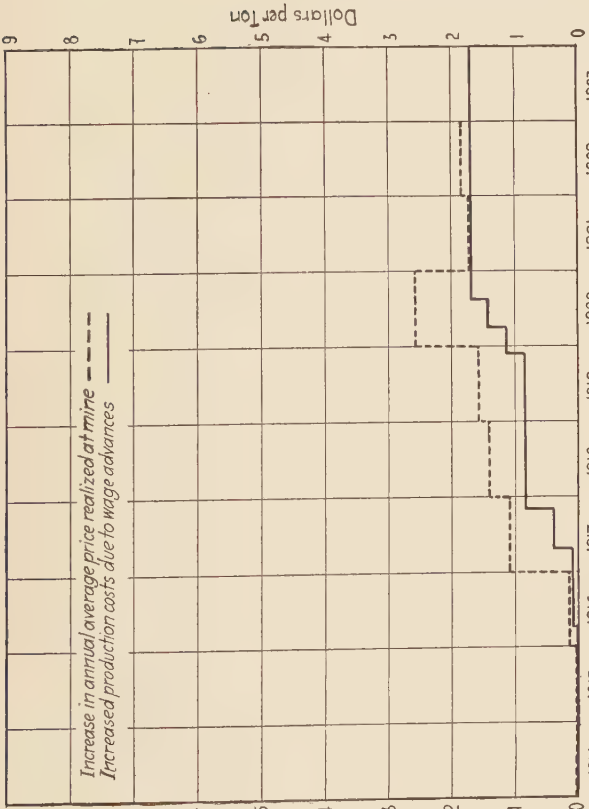

FIG. 5.—INCREASE IN ANNUAL AVERAGE REALIZED MINE PRICE OF BITUMINOUS COAL OVER 1914 AVERAGE COMPARED WITH INCREASE IN PRODUCTION COSTS DUE TO WAGE ADVANCES SINCE 1914.

example, consumers were active in acquiring reserves against an anticipated strike on April 3. When the strike failed to materialize consumers started to use up their reserves and shortly the country found itself with little more than a two-weeks' bituminous supply on its hands. The same condition prevailed in 1919 when soft-coal consumers devoted themselves to using up the storage reserves which they had accumulated prior to the armistice.[1]

When in addition to this tendency on the part of consumers one finds frequent car shortages with a consequent inability of the mines to ship their product;[2] an occasional strike in the transportation service (for instance, the switchmen's strike of 1920 and the shop strike of 1922); and propaganda by the operators through paid advertisements and supposedly impartial Associated Press releases[3] emphasizing the probable difficulty of getting coal in the immediate future, one can readily see how easy it becomes to bring about such abnormal prices as have prevailed in recent years.

During periods of falling prices, on the other hand,

indicates a seller's market; 20,000,000 tons indicates a panicky market; and above 40,000,000 tons indicates a buyer's market in which salesmen again take the road and begin to solicit business on the consumer's terms." *Tryon, F. G., and McKenney, W. F., Economic Phases of Coal Storage: Coal Review, vol. 7, no. 26, p. 11, Dec. 12, 1923.*

[1] Relief from Irregular Production and Overdevelopment: Rept. U. S. Coal Commission, p. 5, Sept. 20, 1923.

[2] See p. 268.

[3] Inquiry into the General Building Situation: Hearings on S. Res. 350 before Select Committee on Reconstruction and Production, U. S. Senate, 66th Cong., 2d sess., p. 1972, 1922.

the coal market is compelled to absorb large quantities of products which would not ordinarily be expected to appear. The severe competition in the industry, the tremendous expense involved in shutdowns, and a leasing system in many districts which obligates the operator to remove a given tonnage each year irrespective of market demand or price frequently necessitates the operation of mining properties. It is often cheaper to continue producing at a loss than to shut down properties entirely.

Coal prices are lowered too by the ability of the nonunion operator to cut down his wage rates and consequently the price at which he can sell his coal. The union operators in districts adjoining unorganized territory are therefore also compelled to lower their prices in order to maintain their markets. Were they allowed by the union to lower their wage rates also, further wage cuts would no doubt follow in the unorganized fields, and there is no telling how far wage rates would fall during periods of depression.

The result is that the coal output continues, even though at a loss to certain individual operators, and the public often gets its coal at a price below actual cost. The loss is borne in most part by the miner in the nonunion field and the operator in the union field. What, it will be asked, of the union miner? He, too, bears his share of the burden of falling prices, through irregular employment and loss of earnings. How some of this loss may be eliminated will be discussed in the next two chapters.

CHAPTER XIII

THE DIFFERENTIAL SYSTEM AND PRESENT CONDITIONS IN THE BITUMINOUS-COAL INDUSTRY

We have found in the preceding pages that the present system of adjusting wage rates has brought about a level of rates which on the whole is very much like that which prevails in other industries. We have found, too, that coal prices fluctuate up and down under the influence of many factors other than wage-rate changes. These facts might lead one to conclude that the wage system has had little effect on either the miner or the consumer of bituminous coal. The influences wrought by the system of wage differentials, however, make such a conclusion quite unjustifiable.

It will be the purpose of this chapter to make an inquiry into the bearing of the differential system upon the general conditions that now prevail in the bituminous industry and to consider it in terms of its cost to the public, its effects upon the miner, and its effects upon the operator. The machine differential will be discussed with a view toward finding out how this method of fixing machine rates has affected both the cost of mining coal and the income of the machine miner. Next will come a consideration of the freight and thin-vein differentials, which will be examined in the light of their effect on mining

capacity, the number of men employed in mines, the regularity of mine operation, and the destruction of coal resources.

I. THE MACHINE DIFFERENTIAL

In contrast to those unions in other industries which definitely oppose machinery the United Mine Workers of America allow its introduction with certain limitations. Now it is well known that machine methods make possible the utilization of relatively low-skilled and relatively cheap labor; and the practice in many machine industries, in the absence of labor opposition, is to pay lower rates per unit of product to labor working on machine processes than to the hand worker. Paying lower unit rates to machine workers has been justified by various economic writers on the ground that in the long run it is socially advantageous. In view of the usual attitude of the laborer, who is primarily interested in short-run consequences, it will be well to state first the general economic justification that is advanced for this practice. It runs in the following terms:

It is assumed that the initial advantages to be derived from installing machinery should inure to those who own the machines. Consequently it is the employer who immediately profits from the adoption of machine methods. These gains, it is held, are retained only temporarily within the industry. For it is assumed that the lower labor costs per unit of product and the increased output resulting from the adoption of machine processes

will automatically affect the supply of a machine-made commodity and, as a result of the operation of competitive forces, will be eventually reflected in lower prices to the consumer. Ultimately, then, according to this logic, the gains arising from the adoption of machine methods to go the consuming public.

In the process of distributing these gains, it is further held, labor comes in for its share. For even though machine methods may mean the supplanting of skilled hand labor and a lowering of the worker's wage rate per unit of product to a point below what it would have been under the régime of hand production, there are certain compensating factors to offset such disadvantages. First, the machine process increases the potential output of the laborer. Under the stimulus of lowered prices the demand for the products of the machine may presumably be increased. To some extent, then, the increased output of the laborer may counterbalance the lowered wage rate. Second, in so far as the laborer is a direct consumer of the products of his industry, he supposedly enjoys the advantages resulting from the lower price at which these products are eventually sold. Or, if such products are in the nature of raw materials that are used in the manufacture of other commodities which the laborer consumes, their lower cost will be reflected in the selling price of the latter, with consequent benefit to the laborer. Such savings, it is held, ultimately recompense the laborer for the immediate sacrifices he must make when machine

methods are adopted by industry. Consequently all labor organizations should do everything in their power to further the development of the machine process. Interference with the installation of machinery by any restricted group prevents all other labor from profiting by the lower price level which would automatically follow from the substitution of machinery for labor.

Such is the long-time logic with regard to the relation of labor to the machine technique under conditions of competition. In so far as it allows for a sufficiently long time for the operation of the forces involved this logic fits in quite accurately with our past experiences. The organized laborer, however, has tended to discount the significance of such reasoning. It is a long-time logic and his primary concern is with his immediate interests. He does not see in a probable lower price level (concerning whose probability he has his doubts) or even in a probable increase of future income (if he should get it) a sufficient advantage to recompense him for the probable immediate loss of his job or an immediate readjustment of his wage rate to a point where his income will be on a par with that of the unskilled worker. He has spent many years in acquiring his skill and in struggling to maintain his wage rate. Through his organization, therefore, he frequently strives to prevent the installation of machinery. He feels that he must preclude any encroachment upon his status and wage rate by obstructing whenever possible the adoption of machine methods.

Underlying the machine differential in the bitu-

minous industry is a theory of wage-rate determination which is strikingly different from that discussed above.[1] In contrast to a demand for rates of pay for machine work which will make unprofitable the installation of machinery, the organized bituminous workers ask a rate for machine workers which will presumably allow the operator a "fair" return on his investment in labor-saving devices. The United Mine Workers, to be sure, have sought to protect the status of their skilled miners and to maintain the wage rates of their membership—but not by penalizing the introduction and use of machinery. Individual members and local officers have unofficially fought against the installation of machines, but as a general rule this has not been with the consent of the International Union.

The International Union has rather worked on this premise: they have said to the operators, "You can install machinery and pay a lower wage rate per ton to the man who works with the machine. But the difference between his rate and the rate paid to pick miners must not be more than sufficient to give you a fair return on your investment." In this way the union has attempted to keep machine-mined coal from underselling the product of the pick mines. The operator may use machinery or he may not, just as he sees fit; but if he does, his rate for machine workers is so fixed as to make it impossible for him to undersell his competitor who does not use machinery. The rate he must pay to his machine miners is sufficiently low to make profitable the installation

[1] See Chapter VI—How Machine Rates are Made.

of machinery but not low enough to give him any considerable competitive advantage. The union, in short, has attempted to protect the pick miner by preventing the possible elimination of those pick mines where the use of machinery is impracticable. Through this practice, too, the United Mine Workers have automatically maintained a level of earnings for the machine worker which approximates that of the pick miner.

The machine differential tends to give to the miner part of the savings which would theoretically go to the consuming public. Under our competitive system, if all of the advantages of machine production inured to the operator his lower cost would presumably in the long run result in lower prices; and the public would eventually enjoy the savings brought about by the machine process. The United Mine Workers, however, have demanded a large share of these advantages for themselves for the very purpose of preventing the operator from lowering his prices and forcing the pick mines out of existence. Theoretically at least, the advantages which would ordinarily go to the public from the use of machinery are limited to the surplus over the cost of machine maintenance which is allowed to the operator through the machine differential; and then only to that part of the surplus which expediency compels the operator to give to the public through lower prices. The tendency, in other words, is to give the machine miner a higher rate than he might otherwise receive and thus enhance the cost of producing machine-mined coal.

The machine differential has not given disproportion-

ate earnings to the machine miner. The relatively small difference between pick and machine rates and the relatively larger productive capacity of the machine miner should result, it would seem, in abnormally large incomes for the latter class of workers. As a matter of fact the difference between the earnings of the machine loader and the pick miner is usually relatively small. Figures furnished by the National Coal Association for eleven mining districts show that the earnings of machine loaders in the Central Competitive Field who worked at every possible opportunity from January to October, 1919, averaged $5.99 per day, or 35 cents less than the average of $6.34 which was earned by pick miners. Indeed, in only two instances were the average daily earnings of the machine loaders as high as those of the pick miners.[1] The machine cutters, on the other hand averaged $7.07 per day, or 73 cents more than did the pick miners. The latter, however, are relatively few in number.

A similar picture for the organized fields in 1920 and 1921 is to be found in the report of the U. S. Coal Commission. (See table on opposite page.)

In contrast to the conditions in the union fields we find the nonunion loader earning more per start than the nonunion pick miner. And this in spite of the fact that the machine differential in the unorganized fields is fixed by the operator. As far as the union loader is concerned, then, the machine differentials appear to have been relatively ineffective. They were intended in part to raise his status

[1] See Appendices G and H, pp. 300–301.

to that of the pick miner, and to a degree they may have been successful. Yet when one considers the relative position of these two crafts in the nonunion fields, the efficacy of the machine differential in this direction appears somewhat questionable.

AVERAGE EARNINGS PER START FOR FULL-YEAR TONNAGE MEN, 1920 AND 1921 *

	Northeast area		Southeast area		Western area	
	53 selected mines		68 selected mines		24 selected mines	
	1920	1921	1920	1921	1920	1921
Union mines:						
Machine cutters	$8.82	$9.76	$9.13	$10.20	$9.07	$8.64
Machine loaders	7.81	7.26	7.45	7.58	8.84	9.14
Pick miners	7.90	8.17	7.63	8.00	8.90	8.92
	44 selected mines		65 selected mines		31 selected mines	
	1920	1921	1920	1921	1920	1921
Nonunion mines:						
Machine cutters	$9.84	$8.48	$9.46	$9.12	$10.76	$11.99
Machine loaders	8.33	6.62	8.08	6.93	7.84	7.69
Pick miners	8.26	6.46	7.13	7.07	8.01	7.86

* Data from Earnings of Anthracite Miners and Earnings of Bituminous Miners; Report of U. S. Coal Commission, as computed by H. B. Drury for Comparison of Wages in the Anthracite Coal Industry with Wages in the Bituminous Coal Industry and Other Industries: Annals of American Academy of Political and Social Science, Jan. 1924.

Raising the level of the organized loader's earnings was not, however, the original and immediate pur-

pose of the machine differential. Its purpose, as we have seen, was rather to protect the output of the pick miner against the competition of machine-mined coal. By maintaining a fixed differential between the pick and the machine rates it was thought that the cost of machine mining would be kept at a point which would make it impossible for the product of machine operations to undersell the product of the pick mines. The differential, however, was to be large enough to yield the operator a "fair" return on his investment and thereby enable anyone who so wished to adopt the machine methods of mining.

The machine differential has not up to the present seriously interfered with the rapid adoption of mining machinery. The operators, to be sure, have frequently claimed that existing differentials do not allow a return on investments in machinery sufficient to warrant additional installations. This is particularly true in those places where the expense of installing equipment and power lines and the cost of electric power are high. A fixed differential for each district does not allow for such exigencies, and many of the operators are no doubt justified in their complaints.

This condition raises the question as to whether or not labor is entitled to any of the savings that result from machine installation, and if so, how much. Many persons believe that none should go directly to labor, and that all such savings should inure to the owner to whom is directly due the installation of the machine. The Bituminous Coal Commission of 1920, on the other hand, specified

in its award that in the event of the introduction of a new machine the "mine worker shall receive the equivalent of the contract rates for the class of work displaced *plus a fair proportion of the labor-saving effected.*"[1] Just what a "fair proportion of the labor saving" is, it would be hard to say. In those districts where the machine differential is relatively small, it is very likely that the miner gets more than "a fair proportion." If on the other hand one is to judge by the steady increases in machine production in these same low-differential districts, he can not but conclude that there must be a large number of operators who find the low machine differential profitable. In spite of the 7-cent differential in Illinois, machine-mined coal today approximates 66 per cent of the total coal output. Machine production in Ohio has increased until it comprises over 90 per cent of the State's output; while in Pennsylvania and Indiana the machine output is 64 and 53 per cent, respectively, of their production. In some of these fields, at least, the machine differential with its limited return on machine investments has not deterred the operators from furthering machine production.

It is questionable whether a larger differential would have led to a more universal adoption of machine mining. Natural conditions are frequently a more important determinant in the installation of mining machinery than are wage rates. Moreover, the nonunion fields, where the machine differential is

[1] Majority Rept. U. S. Bituminous Coal Commission, p. 55, 1920. (*Italics are the author's.*)

beyond the control of the union, show a much larger per cent of pick production than do those districts which are bound by union contracts. Of nonunion States Maryland produces 83.5 per cent of its coal by the pick method, nonunion Colorado 48.2 per cent, and Tennessee 31.6 per cent. West Virginia, which is to a very large degree unorganized, mines over one-fifth of its coal by hand, and Fayette and Westmoreland counties, the strongholds of nonunionism in Pennsylvania, produce about one-half of their coal in the same way. In contrast with these nonunion districts are the States of the Central Competitive Field whose pick output averages 2.7 per cent for Ohio, 5.5 per cent for Illinois, 7.3 per cent for Indiana, and 33.1 per cent for Pennsylvania.[1]

In view of the above, one can not determine the extent to which the machine differential has limited the advantages that inure to the operator from the use of machinery. Consequently it is impossible to say just how far the public has been prevented from sharing in the lower costs that might have prevailed had the machine differentials been of a different nature.

In the near future the maintenance of the machine differential will become an issue of paramount importance, directly affecting the cost of coal. With the practical adaptation of automatic loading machines, some of which already have shown a loading capacity

[1] Coal Production: U. S. Geol. Survey Weekly Rept. No. 289, March 31, 1923. It will be noted that a considerable tonnage in Illinois and Indiana is neither machine nor pick mined, but is either shot off the solid or strip mined. (See Chapter I.)

of a ton of coal per minute, the economic justification of the present system of machine-rate adjustment will be sharply challenged. At the moment numerous technical difficulties stand in the way of the rapid adoption of the automatic loader. But when these difficulties have been overcome the system of machine differentials will be one of the most important factors in determining the rate of installation of the machine loader. And on the rate of installation will depend to a significant degree the future cost and price of coal.[1]

On this rate, too, will depend the future of those mines that are artificially supported by the machine differentials. In so far as these differentials protect the pick miner, they do so by making possible the continued operation of mines that might not otherwise be able to compete with the machine-mined product. In other words they help to maintain certain mines which might in the ordinary course of events have no economic justification for their existence. The maintenance of surplus mines is the

[1] Of first importance in this connection [the possibilities of loading machines] is an agreement between miner and operator as to a wage scale for mechanical loading. In Illinois the operator is paying the cutting-machine rate to loading-machine operatives. In Indiana the pay of loader operatives runs as high as $12.50 a day. In neither State has a piece-work rate been made for mechanical loading. However, in Indiana a joint committee of operators and miners was appointed in the spring of 1923 to formulate a scale, but thus far it has not concurred in any recommendation. It is certain that this question will be much to the fore during the coming wage-negotiation meetings scheduled for next month. *Brosky, A. F., Interpretation of Progress in Mechanical Loading: Coal Age, vol. 25, no. 3, p. 67, Jan. 17, 1924.*

cause of many of the acute difficulties which today beset the soft-coal industry; and it is generally admitted that the solution of many of the problems with which the industry now copes depends in large part on the elimination of the surplus operations.

Overdevelopment means unemployment and intermittent employment to the coal miner and a direct loss to him in earning power. It has adversely affected the profits of the operator and it has imposed a burden on the consumer. Not only are these facts generally accepted, but official governmental recognition has been given to them. Indeed the question of overexpansion has been taken into account by the Interstate Commerce Commission in considering the advisability of extending new railroad trackage to undeveloped coal areas.[1] This state of affairs lends added significance to the machine differential and makes peculiarly important the question of freight and thin-vein differentials.

[1] In June, 1923, the Interstate Commerce Commission, in denying the application of the Virginian Railroad for permission to extend track to a new mine on one of its branches, specifically said: "There are at present more mines in the country than is consistent with the efficient use of carrier's equipment and their aggregate car supply." It pointed out further that the opening of more mines would make the car supply less adequate and tend to reduce the production of coal by reason of the railroads being required to serve more operations. With fewer operations to be served, coal could be moved more effectively with the same number of engines as is now used. After a rehearing of the case at which the Virginian Railroad presented evidence as to its future ability to meet the demands of the probable increased traffic that would result from the opening of new mines along the proposed extension, the Interstate Commerce Commission reversed its decision (Dec., 1923).

II. FREIGHT AND THIN-VEIN DIFFERENTIALS

The freight and the thin-vein differentials were adopted as a protection for those mines which in the ordinary course of market competition could not effectively survive. These differentials have been of considerable advantage to certain groups of operators as well as to many of the miners. Such advantages as have accrued to either side have, however, been derived in part at the general public expense. The maintenance of surplus mining operations, as we shall shortly see, constitutes a charge on the public income for which one can find little economic justification. One can not, to be sure, attribute the opening of new and unnecessary mines to the differential system directly. Yet it is an indirect factor in this connection; and once new mines have been opened differentials play an important part in making the survival of such mines possible.

We have already seen that theoretically at least all operators are supposedly put on an equal competitive basis through the system of differentials. This is particularly true of freight differentials; and in so far as the rate structure actually fits in with the conception of competitive equality it becomes possible for operators to compete effectively in the sale of their coal. The system is particularly advantageous to those operators whose properties are located far from their market, for the mine owner whose coal has to bear a large transportation charge in getting into the market is ostensibly compensated for this

disadvantage by a lower tonnage wage rate. To be sure, such differentials as are allowed for freight charges are equal to but a small fraction of the differences in transportation costs; yet the very fact that such differentials are allowed is of advantage to the operator. It puts the unfavorably located mine owner in a more beneficial position than would otherwise be the case. His tonnage wage rates are lower than those paid by his more favorably located competitors, and to that extent his labor force helps to pay for the disadvantage which arises from the adverse position of his mine.

Similar results follow also from the thin-vein differentials. These differentials have as their object the continued operation of mines in seams where the mining of coal is both difficult and expensive. To be sure, they give to the miner a tonnage rate which is higher than that paid in the better coal seams and accordingly increase the labor costs of the thin-vein operator. This higher rate is to recompense the miner for the more difficult work he must perform; for in the thin seams more work must be done and more time expended, in turning out a ton of coal. This higher rate, however, does not put the thin-vein miner on an equal footing with other miners. That is to say, his rate is not as liberal as is that of the more advantageously situated miner. Any rate which would be relatively as high as the thick-vein rate would put labor costs at a level which would make it impossible for the thin-vein operator to dispose of his coal. The miners, accordingly, have agreed to accept a rate which is

lower than the thin-vein conditions would naturally justify. That is to say, they are willing to bear an appreciable part of the cost of keeping the thin-vein mines in operation. In return for this burden, the thin-vein miners are assured a greater measure of employment. Frequently they are assured of some occasional employment in mines which might otherwise have been entirely shut down.

The burden of maintaining thin-vein and disadvantageously located mines is borne in part by all mine workers. The thin-vein miner bears the larger part of it, to be sure, by accepting a relatively lower wage rate. Yet as a result of the general organization of the industry and its dependence on our transportation system, his fellow miners in other fields are frequently compelled to share the burden with him.

The demand for bituminous coal is seasonal. In periods of slack demand and low prices only the more efficient and more favorably located mines can maintain operation. Only in periods of active market conditions and high prices can the poorer mines afford to operate.[1] Demand for a mine's product, however, does not in itself mean that operation will go on. Mine operation is dependent principally on the facilities that are available for

[1] It should be borne in mind that there are many thin-vein operations which because of the peculiar quality of their product or because of contracts with railroads or large industrial enterprises find it possible to maintain fairly steady operation. The general run of thin-vein mines, however, find it difficult to maintain operations in face of competition from the better seams during periods of low prices.

transporting the mine product to the place of consumption. Coal can not be conveniently stored at the mine mouth. Consequently the supply of coal cars is an important factor in determining continuity of operation.

With the opening of the poorer mines in active periods comes a demand for coal cars to meet their needs. Governmental regulations require the railroads to meet the needs of all mines in proportion to their productive capacity. That is to say, a given supply of available cars must be distributed among all claimants, the share that goes to each mine being determined by the relation of each mine's productive capacity to the combined productive capacity of all the other mines in the field served by the railroad. This frequently means that the railroads must furnish to the poorer and less efficient mines cars which would otherwise have gone to the more efficient and the more steady operations in the district. In other words, when the poorer mines operate they do so at the expense of their more efficient competitors and their employees. For a decrease in the car supply of the efficient operations means more irregular operation for them. And with more irregular operation comes less employment for the men working in such mines. In so far as the wage differentials either hasten or actually make possible the working of mines which might otherwise be shut down during periods of active demand and rising prices they indirectly cause part of the loss of employment suffered by the laborer who works in the better mines. And to the degree

that this condition affects the earnings of the latter, he is made to bear a part of the cost involved in furnishing employment to the worker in the poorer mines.

It is evident that all mine labor is affected by the operation of the poorer properties. In so far as maintaining those mines which are dependent upon the freight and thin-vein differentials means added unemployment, labor in the better mines bears part of the burden of operating them. But the largest part of the cost is borne by labor in the artificially supported operations. Their work is more difficult and their daily output is smaller. Consequently there is frequently a considerable difference between the earning capacity of the thin-vein miner and that of the miner employed in the thick seams.

The difference in earning capacity and economic position which results to miners in different seams from the system of freight and thin-vein differentials is further accentuated by the policy of making all changes in tonnage rates on a flat rather than on a percentage basis. In order to keep the differentials between different points uniform at all times all changes in tonnage rates [1] are made on the basis of a given number of cents per ton. That is to say, rather than have changes made on the basis of a given percentage of the existing rates, an increase or decrease of a fixed number of cents per ton is applied to the rates at all organized mines.

This system not only gives the thin-vein miner a smaller percentage of change in his wage rate but

[1] See p. 62.

also tends to widen the already existing difference in the earnings of the various groups of miners. A 10-cent increase in the tonnage rate gives to the thick-vein miner who gets $1.00 a ton for his output a 10 per cent increase in his wage rate and to the thin-vein miner who gets $1.20 only an 8.33 per cent increase. Moreover, since the output of the thin-vein miner in a given period of time is smaller than that of the miner employed in a normal seam this 10-cent increase per ton has a relatively smaller effect upon his earning capacity. If he can average 3 tons per day at $1.20 per ton his day's earnings will amount to $3.60. An output of 4 tons per day in a normal seam at $1.00 per ton gives to his fellow-worker an income of $4.00 for his day's work. The difference in earnings then amounts to 40 cents. If now tonnage rates were to be increased 10 cents per ton the thin-seam miner's daily earnings would be increased to $3.90 while the miner in the normal seam would receive $4.40. The difference in earning capacity has now been increased to 50 cents. As wage increases are made over a period of years, this difference becomes larger and larger, and the miner in the thin seams finds his earnings becoming progressively smaller than those of the miners in the thicker seams. In other words, the thin-seam miner through the ever-widening differential between his rate and that paid to miners elsewhere is forced, as a result of the system of universal flat advances, into a progressively poorer economic position.

Keeping the poorer mines in operation means an added burden to both the efficient operator and the con-

sumer. In so far as the differentials help to develop and keep in operation unnecessary mines, they accentuate the already existing destructive competition and help to make more irregular the operation of other mines.[1] Consequently they tend to increase the frequency of shutdowns and the irregularity of operation in an industry which even in times of maximum demand does not work full time. Moreover, unnecessary mines mean unnecessary labor, of which the industry today has an excess of some 200,000.

It has been estimated that it costs the industry $100,000,000 a year to maintain the capital invested in the coal mines of the country during periods of idleness.[2] To this amount we might add the cost of keeping in the industry an excess of perhaps

[1] A picture of the nature of the competition in the bituminous industry is presented by the situation in southern Minnesota.

To this market Illinois and Indiana ship heavily by rail. A dozen fields of Ohio, Pennsylvania, and West Virginia ship by rail to the lakes and then by vessel to the head of Lake Superior and Lake Michigan, there to be unloaded on the docks and then sent inland by rail again. Other Appalachian coal, perhaps from the same fields, moves up through lower Michigan and across Lake Michigan by car ferry to Manitowoc and Milwaukee and thence inland. Still other consignments of Appalachian coal find their way into this territory all-rail through the Chicago gateway. Occasionally a car of Arkansas anthracite makes its way into this market, and under certain unusual conditions the far-away shippers of Wyoming enter the market. Clearly where competition is so nicely adjusted, any change in freight rates or still more in labor cost, will push the sale of one coal at the expense of another.—*Tryon, F. G., Competitive Conditions and Their Effect on Labor Relations in the Coal Industry: Coal Review, vol. 7, No. 22, p. 12, Nov. 28, 1923.*

[2] Minority Rept. U. S. Bituminous Coal Commission, p. 89, 1920.

200,000 miners and their families as well as the cost of maintaining the miner during an average of fourteen weeks of unemployment every year. The irregularity of employment justifies the miner's demand for a wage rate sufficiently high to enable him to exist during those intervals in which he finds himself out of a job, and the presumption is that the miner's rate today is in all probability somewhat higher than it would be were he assured more regular employment. Just how much higher it is no one can say, and the total cost to the public is not subject to estimate.[1] Nor can one estimate the value of the coal resources that are destroyed each year because of the operation of the poorer and unnecessary mines.

Where the system of rate determination enables disadvantageously circumstanced operators to compete effectively in the coal markets it hastens the destruction of our coal resources. To the extent that freight rates, access to the market, quality of coal, and similar factors are taken into consideration in determining the wage rate and the less favorably situated operator is given a lower rate, the system is conducive to the unnecessary exploitation of our coal reserves. For it leads to the development and

[1] One should emphasize the fact that this wasteful condition of the industry is not to be attributed to the machinery of rate determination alone. Indeed, transportation conditions, the seasonal nature of the industry, and the ease of opening new mines which have been mentioned above are of greater importance in this connection. Yet the effects of the rate system should not be overlooked and its rôle in bringing about existing conditions should be recognized.

maintenance of new mines in an industry which, because of the availability of coal lands, of a relatively low initial expense of opening new mines, and of guaranteed transportation facilities for all new enterprises, already has an excess capacity of some 250,000,000 tons.

Differentials which make allowances for unfavorably located and thin-vein mines are a factor in making possible the opening or operation of mines whose existence has no economic justification. Competition becomes more destructive, and an industry already suffering from maladjustments due to fluctuating demands, seasonal variations, recurrent overproduction, and abnormal competition is put into an even more haphazard condition. The individual producer, consequently, skims at short intervals the resources of his mine, and employs the most wasteful methods to take advantage of those recurrent periods of demand which make operation profitable. Should he attempt to recover more coal by adopting more scientific methods and working the less favorable portions of his property, he faces the handicap of destructive competition and the probability of financial loss. Irregular operation and frequent shutdowns have precluded to a large degree the introduction of new and improved methods in the thin-seam areas and have accordingly caused the continuation of wasteful mining practices. The result is that our coal reserves are most wastefully depleted. It has been estimated that, as a consequence, the tonnage of the thin-seam and high-cost areas which is sacrificed in mining amounts

to more than one-half the total amount of coal that is produced.[1]

Too much emphasis can not be given to such a condition, particularly as "the importance of coal wastage has been generally underestimated on the assumption that our supplies of coal are virtually limitless." In the words of George Otis Smith,[2] Director of the United States Geological Survey:

> The fact that more than half of the world's coal reserves are believed to lie within the territory of the United States has led too many of us into unwarranted optimism. The captains of the great industries concentrated along the Atlantic seaboard will do well to think less of the millions of tons that are said to lie awaiting their need in various parts of this continent-wide country of ours, but rather to ask for details as to where this coal is and how available it is for the use of this and the next generation. The total tonnage involves strings of figures hard for us to comprehend, but the tonnage remaining in the great producing fields of the East is so limited as to compel us to foresee their exhaustion within periods of the same magnitude as those which you executives figure as the expectancy of life for your industrial enterprises. For example, the Pittsburgh bed in Pennsylvania was estimated forty years ago as good for thirty generations, but the rate of mining has so greatly increased that now we must measure the exhaustion of this largest bed in the Keystone State by the space of a single generation. This is not an exceptional illustration of the shortened life due to unexpected increase in drafts upon our coal resources, for in the Georges Creek field in Maryland this same bed, there called the "Big Vein," was believed forty years ago

[1] Gilbert, C. G., and Pogue, J. E., America's Power Resources, New York, p. 51, 1921.

[2] Smith, G. O.: Ibid., p. 58.

to have a life of at least 150 years, but today the field is regarded as almost worked out. Even if you turn to a less nearly exhausted field, such as the Pocahontas, the earlier optimistic calculations of an expectancy of life of four or five generations are now reduced to three or even two.

In last analysis the system of freight and thin-vein differentials must be looked upon as an economically unjustified institution. It is costly to the miner, the operator, and the coal consumer. Indeed, the only parties that profit by it are those operators whose properties would otherwise be shut down and those miners who, in all probability, would be forced into other industries. It is profitable to the thin-vein operator because it makes possible the operation of properties that would otherwise be of little value. It is profitable to the thin-vein miner because it affords him greater employment. To the industry, as a whole, the differential system means the duplication of unnecessary investment and equipment, more frequent periods of overproduction, more intensified car shortages, and more severe and destructive competition. In so far as it makes possible the operation of unnecessary mines, the differential system accentuates the irregularity which characterizes the operation of the bituminous industry.

Such irregularity leaves its mark upon the miner, the operator, and the consuming public. To the miner it means loss of earning power; it develops in him irregular habits; and it contributes in large degree to the absenteeism and large turnover which

are so common in the mining industry. To the mine owner it means high costs per ton, administrative difficulties, and mechanical troubles in the mines resulting from shutdowns. "To the public it means high-cost coal, for the labor and capital must be paid for 93 days in which they are idle each year as well as for the 215 days on which they work."[1] To future generations it means thin and inferior coal resources —the heritage of the wasteful régime of the present generation.

[1] Tryon, F. G., Irregular Operation of the Bituminous-Coal Industry: Amer. Economic Review Supp., vol. 11, no. 1, p. 61, Mar., 1921.

CHAPTER XIV

A READJUSTED WAGES SYSTEM AND THE FUTURE COST AND CONSERVATION OF COAL

Our conclusions thus far have been that the wage structure in the bituminous industry is neither unified nor logical. It has been made apparent, too, that so far as the theory of competitive equality has actually determined the structure of wage rates and the differential system has been applied, the wages system has proved economically wasteful. Indeed, it accounts in part for the present disorganized condition of the bituminous industry.

This state of affairs raises the question, interesting from the public standpoint, as to what might be expected if the basis of rate making in the bituminous industry were changed. That is to say, what would be the probable effect of a change in the differential system? It will be our purpose in the following concluding pages to review briefly: I. The outstanding features of the prevailing wage structure; and to emphasize once more: II. The significant effects of the wages system. This summary will be followed by an inquiry into: III. The elimination of the differentials and its probable effects on the future cost of coal and the conservation of coal resources.

I. THE OUTSTANDING FEATURES OF THE WAGES SYSTEM

The wage-rate system in the bituminous industry is the outgrowth of conditions which prevailed prior to 1898. In those days the industry was in a most chaotic condition. The widespread business depression, the overproduction of coal, and the freer access to old markets afforded by railroad extensions brought about a competition so severe that capital invested in mining yielded little or no profit. Frequent reductions in wages afforded no relief to capital, for a wage reduction in one field was followed by a corresponding reduction in every other competitive field. By 1896 the earnings of the Ohio miners had fallen to an average of from $213.20 to $319.62 for the year. In Illinois the average earnings for the first half of 1897 was about $12 per month.[1] The miner, too, suffered all of the evils of the company store, the abuse of the screen system, dockage, etc. Capital, on the other hand, fared no better than did labor. One of the leading companies in the Pittsburgh district gave testimony under oath at the time that it was making only $8,000 profit on an investment of $1,000,000 [2]— and this in spite of the fact that it was getting its coal mined at 10 cents a ton less than did its competitors.

By 1898 both the operators and the miners had become convinced that conditions would have to be changed. A new wage-rate structure would have

[1] Suffern, A. E., Conciliation and Arbitration in the Coal Industry of America, p. 41, 1914.

[2] Ibid., p. 43.

to be evolved—a rate structure which would make competitive wage cutting impossible.

The Interstate Joint Conference was accordingly evolved for the determination of wage rates. This conference is made up of the representatives of the operators and miners of the four districts which make up the Central Competitive Field. It fixes the basic rates for certain key points in the four districts; and to these basic rates all other rates within the Central Field are adjusted. All changes made in the basic rates are reflected in the rates paid in the outlying districts; that is, in the districts outside of the Central Competitive Field. Adjusting the rates at the various mining centers to the basic rates set by the Interstate Conference is the function of the district conferences. Adjustments peculiarly local in nature are frequently made by subdistrict conferences. Contracts for the outlying areas are made by conferences in the respective districts; are based on local conditions entirely; and are supposedly related to the interstate agreement to the extent that they incorporate wage-rate changes equal to those made in the Interstate Joint Conference.

In order that as many operators as possible might become parties to the collective contract the Interstate Conference accepted the theory of competitive equality as the basis of rate making. Rates were to be fixed so as to give every operator access to his markets. Variation in distance from mine to market; variations in physical conditions of mining; and variations in methods of mining were to be

provided for in determining the rates to be paid to labor. With this end in view the early contracts provided for a series of differentials.

Many of the early contracts provided for a freight differential which took the form of a lower tonnage rate to miners in mines distant from their market. Thin-vein differentials provided a relatively less liberal tonnage rate for the miner employed in thin-vein operations. These thin-vein rates were based on the assumption that both the miners and the operators ought to bear the cost of maintaining operation in the thin-seam mines; the miner by accepting a relatively lower tonnage rate than is paid in the better seams, and the operator by paying a higher tonnage rate than his competitors in the better seams.

With the application of machinery to mining came a third consideration—a differential for the machine work. This differential fixes the rate for machine work by deducting a fixed amount from the pick rate, the amounts so deducted to be sufficient to allow to the operator a "fair return" on his investment in machinery.

The theory of competitive equality soon became the subject of controversy between the operators and miners. Differences in interpretation have arisen and in negotiating wage rates the relative bargaining strength of the operators and miners has determined how the theory of competitive equality should be applied. Neither side has been consistent in maintaining its own interpretation; and when it has proved to its own advantage neither

group has hesitated to adopt the interpretation of its opponents in securing its ends. As a result all sorts of unequal and illogical rate adjustments have come to prevail, and with the exception of the inside day rates the wage structure today bears little semblance of unity.

In recent years the growth of the nonunion fields has proved an added obstacle to the removal of rate maladjustments. Many union districts have been unable to meet the competition of the unorganized operators, whose ability to adjust their wage rates to meet market conditions gives them an advantage in the disposal of their product. The realization that a unified rate structure can not be attained unless the nonunion operators are made subject to the collective wage agreement has led the union officials to devote the major part of their energies and resources to the organizing of the nonunion areas. That their success has been slight is shown by the fact that over 40 per cent of our bituminous output is still produced under nonunion conditions.

II. EFFECTS OF THE WAGES SYSTEM

The prevailing wages system has brought about no abnormal increases in mining wage rates. Since the inauguration of the Interstate Joint Conference tonnage rates have not advanced proportionately as fast as have the rates paid to labor in other organized industries. Advances to day men have been about 16 per cent greater than the advances made to labor in industry as a whole. These wage-rate advances have had their effect on the cost of

mining coal; but there is no direct relationship between the changes in labor costs due to wage advances and the changes in coal prices. Many factors equal in importance to labor costs have determined the market prices of bituminous coal. While there have been periods when advances in coal prices have been much greater than the increase in labor costs would have warranted, there have also been periods when coal prices have been so low as to leave little margin above the outlays for labor.

To the extent that the wage-rate system has made use of differentials it has proved economically wasteful. Although the machine differential has not up to the present time visibly affected the installation of machinery to any appreciable degree it has, theoretically at least, kept from the consumer part of the savings which result from the use of machinery. The machine differential has also maintained in operation certain pick mines whose product could not otherwise meet the competition of machine-mined coal.

The freight and thin-vein differentials likewise make possible the operation of many mines which have little or no economic justification for existence. Like the machine differential they are indirectly a cause for the overexpansion that today characterizes the bituminous industry. To this overexpansion can be attributed in large part the irregularity which today prevails in coal mining—an irregularity which has brought with it loss of earning power for both the miners and the operators and high cost of coal for the consuming public.

III. ELIMINATION OF THE DIFFERENTIALS AND SOME PROBABLE RESULTS

The evils inherent in the differential system make pertinent an inquiry into the probable results that would follow from a change in the method of fixing tonnage rates. The simplest change might be either to remove in their entirety such advantages as are afforded by the various differentials or to greatly reduce their range.[1] In either event a large number of mines which today benefit from these differentials would no doubt find operation unprofitable. As a consequence production would be centered more intensively on the more efficient mines and on the richer fields.

These latter mines if regularly worked could turn out sufficient coal to meet all of our bituminous requirements. Our productive capacity today is more than 200,000,000 tons in excess of what our maximum combined consumption and exports have ever warranted. Past experience has shown that a relatively small group of mines running at capacity can supply approximately 60 per cent of the country's needs. Furthermore, some 6,000 mines employing 556,000 mine workers have been able to turn out in one year (1910) 1,000,000 more tons of coal than did some 8,000 mines with 663,000 men in another year (1921)—this despite the fact that the average daily output of the miner increased

[1] Suggested changes of a more radical nature will be found in the Appendix I., pp. 301–305. For further discussion of possible changes, see "The Bituminous-Coal Problem." (In preparation by the Institute of Economics.)

from $3\frac{1}{2}$ to $4\frac{1}{5}$ tons during the intervening period.[1] The difference in the output of the two years considered is explained by the fact that bituminous mines operated on the average 217 days in 1910 as against 149 days in 1921.

More regular operation for the smaller number of mines should meet our needs. And with a more steady supply of coal cars, which should naturally follow from the elimination of any appreciable portion of the mines now artificially supported by the differential system, such regular operation should be to some degree assured.

More steady operation of our coal mines should bring with it lower production costs. Curtailing production and frequent shutdowns are a considerable item of expense in coal mining. Every idle day adds to the cost of producing coal on other days. Overhead costs go on during periods of shutdown as well as during periods of operation. The conditions of a mine, as respects equipment, development, and labor, must be such as to allow for production on short notice. Mines are seldom completely closed and the labor force dismissed for short periods. Even in times of slack demand, it is necessary to maintain a working force; in part to keep the mine in condition and in part because some of the force are paid by the month. Moreover, superintendents and engineers must be kept in the plant, and the cost of feed and stable supplies, depreciation, taxes, insurance, salaries, and office maintenance must be met. As a result, the overhead expense

[1] Preliminary Rept. U. S. Coal Commission, 1923.

for a given year must be prorated over the tonnage produced in that year. Obviously if a mine produces twice as much coal in one year as it does in another, each ton produced in the slack year must carry twice as large a proportion of the overhead as does each ton turned out in the year of higher production.

Taking the month of twenty-five working days as full-time operation, it is found that when the mine works sixteen days (four days per week) the cost per ton is increased 8 to 9 per cent over full-time operation; when working time is twelve days per month or three days per week, that is, half time, the unit cost is 21 to 25 per cent over full time or minimum cost; and when but eight days per month or two days per week is worked, costs increase 48 per cent. Four days per month or one day per week of operation raises costs 104 to 120 per cent over the minimum. If but one day is worked per month, the increase is from 474 to 549 per cent over full-time operating costs.[1] The table (p. 226) shows the effect of each day's idleness on the cost of producing a ton of coal. The figures are percentages over the cost that would prevail if a mine ran twenty-five days each month.[2]

The increase in the cost of producing a ton of coal due to restricted running time is frequently 50 cents per ton and over.[3] Accordingly every measure

[1] The Effect of Irregular Operation on the Unit Cost of Production of Bituminous Coal: U. S. Coal Commission, p. 1, 1923.

[2] Idem, p. 2.

[3] Bockus, C. E., Bituminous Coal Problems: Harvard Business Review, Apr., 1923.

INCREASED PRODUCTION COSTS PER TON OF COAL FOR EACH DAY IDLE

(25 days per month is taken as full time)

Days worked	Percentage of full time	Percentage increase in cost of production		
		1918		1921
		266 mines	117 mines	119 mines
25	100	0	0	0
24	96	1	1	1
23	92	2	2	2
22	88	3	3	3
21	84	4	4	4
20	80	5	5	5
19	76	7	8	6
18	72	8	9	8
17	68	10	10	9
16	64	12	12	11
15	60	14	15	13
14	56	17	18	16
13	52	19	21	18
12	48	23	25	21
11	44	27	29	25
10	40	31	34	30
9	36	37	40	35
8	32	45	48	42
7	28	54	58	51
6	24	67	72	63
5	20	84	90	79
4	16	111	120	104
3	12	155	167	145
2	8	243	263	227
1	4	507	549	474

which seeks to bring about more regular operation will, to the degree that it is successful, cut down the overhead charges to be borne by each unit of coal produced.[1]

The elimination of superfluous mines, moreover, should enable the industry automatically to dispense with a considerable portion of its labor supply. It should afford to those laborers who remain in the industry more regular and steady employment. It should also make possible lower wage rates and at the same time give to labor a much larger annual income than it now receives. In other words, labor costs per unit may be decreased while labor's earnings may be increased.

The elimination of some of our superfluous mines then should bring with it a competitive pressure toward lower prices. How long the régime of lower prices would continue in effect is a matter of conjecture, for as the richer fields are worked out and the poorer fields are drawn back into use, an era of rising costs and higher prices will in all probability come into being.

[1] Maintenance charges . . . are so heavy at mines that it may be more economical to continue operations in the face of an apparent loss than to shut down the mine entirely. Particularly is this the case with older mines having long underground hauls and high pumping heads. Some interesting data on the subject will be found in the report of a committee appointed to investigate the receivership of a prominent coal corporation about 1911.

This committee found that if the coal properties were shut down the annual loss (would) be $420,000; if they were operated at the standardized cost per ton of 85.7 cents, and for an output of 3,000,000 tons (the coal sold at the price realized the previous year, 80.97 cents) the loss (would) be $141,900.—*Shurick, A. T., Coal-Mining Costs, p. 36, New York, 1922.*

It would seem at first glance that the probable results which should follow from any policy of eliminating the prevailing system of wage-rate differentials would be such as would bring an advantage to the present generation in the form of low coal prices at the expense of future generations. In last analysis, however, this would not be the case. The exploitation of the better seams, unhampered by the destructive competition of artificially supported operations, should make possible the adoption of more advanced and efficient technical methods. In this way not only should the poorer resources, which are being wastefully destroyed under the present system, be saved for future generations, but there should also follow the saving of a considerable portion of the better seams. For with the wasteful mining methods of to-day, many of these latter seams are only skimmed at intervals, so that in some of our fields half of the coal is left behind in the ground in a condition which renders its ultimate recovery unlikely.

Shutting down the thin-vein and uneconomical operations implies the abandonment of millions of investment and the displacement of several hundred thousand men. It implies abandoning hundreds of mining towns and uprooting thousands of families from environments which afford little means of employment outside of mining. Such a result, however, would follow from any attempt to eliminate overexpansion in the bituminous industry. Whether the solution of the problem of overexpansion be sought through a priority assignment of railroad cars, as was suggested by the U. S. Coal Commission;

through a system of price-fixing which would set prices at a level that would make possible the operation of only the more efficient mines; or through any other of the numerous measures that have from time to time been suggested the results will be fundamentally the same. Any scheme for the elimination of the overexpansion in the coal industry will bring with it the transition difficulties that always accompany readjustment in any industry. How these difficulties should be mitigated is a matter beyond the scope of this volume.

The facts of the case, however, are worth repeating. (1) In so far as the wages system provides relatively lower wage rates for disadvantageously located and thin-vein properties it makes possible the operation of mines which have no economic justification. (2) The wages system to a degree, then, is responsible for the overexpansion that to-day characterizes the bituminous coal industry. (3) This overexpansion has brought with it irregularity of operation, excessive costs, and waste of our coal resources. It accounts in large part for the annual loss of over 30 per cent of the miner's possible working time; it makes necessary the maintenance of some 200,000 surplus miners; it adds to the consumers' coal bill some $100,000,000 of overhead charges for periods of shutdowns; and it leads to the wasteful exploitation of our coal fields. (4) These evils can be eliminated in some degree by a change in the wages system. The decision as to whether or not such a change will be made lies immediately with the mine owners and the union.

APPENDICES

APPENDIX A

INSIDE DAY WAGE SCALE, HOCKING VALLEY, OHIO, 1898 AND 1922

	1898	1922
Tracklayers	$1.90	$7.50
Tracklayers' helpers	1.75	7.25
Trappers (boy)	0.75	4.00
Bottom cagers	1.75	7.50
Drivers	1.75	7.50
Trip riders	1.75	7.50
Water haulers	1.75	7.50
Timbermen	1.90	7.50

APPENDIX B

OUTSIDE DAY WAGE SCALE FOR CENTRAL COMPETITIVE FIELD BASING POINTS, 1922

	Hocking Valley, Ohio	Danville, Illinois [b]	Pittsburgh	Indiana Bituminous
First blacksmith	$7.77	$8.44	$7.50 [e]	$7.92 [f]
Mine carpenters	7.45	7.65	7.25 [e]	6.85
Dumpers	7.25	6.93	6.92	6.85
Trimmers	7.25	6.93	6.86 [d]	6.85
Engineers, 1st class	7.25 [a]	241.88 [c]	[d]	233.42
Engineers, 2d class	.....	230.20 [c]	[d]	220.31
Engineers, 3d class	.....	224.37 [c]	[d]	213.75

[a] Minimum rate per day. Does not apply to monthly men.

[b] Minimum rate per day is $6.86 for all outside workers.

[c] Monthly rates for class A mines with daily capacity of 500 tons or more. Class D mines with daily capacity of 100 tons or less have monthly rate of $218.53.

[d] Not under jurisdiction of scale.

[e] Average for district. Minimum rate per day is $6.60 for all outside workers.

[f] Nine-hour day.

WAGE RATES IN THE

Region	U. M. W. Dist. No.	Subdivision	Tonnage rates					
			Standard seam thickness	Pick	Machine cutters	Loaders	Total machine	Machine differential
			Feet	$	$	$	$	$
Western Kentucky	23	...	5	1.0535	0.1411	0.76	0.9011	0.1524
Northern West Virginia	17	...	5	0.876	0.1523	0.627	0.7793	0.0967
Central Pennsylvania	2	...	..	1.1431	7.60[a]	0.7729	..	..
Michigan	24	...	2½	1.3821	0.2225	0.9850	1.2075	0.1746
Iowa and northern Missouri	13	Subdist. 1	2½	1.55	..	..	..	..
		Subdist. 2	3½–8	1.21	7.91[a]	0.97	..	..
		Subdist. 3	..	1.235	7.91[a]	0.985	..	..
		Subdist. 4	2¼	1.845	..	..	..	..
Kansas and western Missouri	14	*c*	..	1.25	0.419	0.711	1.13	0.12
		d	..	..	0.529	0.98	1.509	..
		e	4	1.15	..	..	..	..
Missouri	25	Subdist. 1	3½	1.20[f]	0.266	0.834	1.10[f]	0.10
		Subdist. 2	..	1.76⅔[f]	7.71[a]	1.06	..	..
		Subdist. 4	3	1.25	0.20	0.95	1.15	0.10
Arkansas and eastern Oklahoma[g]	21	General	3½	1.15[f]	0.155	0.925	1.08[f]	0.07
		Henrietta						
		Field	3	1.305[f]	0.275	1.025	1.30[f]	..
Oklahoma[h]	21	...	4	1.25[f]	0.20	0.91	1.11[i]	0.14
Wyoming	22	...	5	1.01[f]	0.13	0.81	0.94	0.07
Montana	27	...	5	1.215[f]	[j]	0.875	..	..

[a] Day rate for cutter.

[b] Monthly rate.

[c] Cherokee and Crawford counties, Kans., and Barton County, Mo.

[d] Same, top vein.

[e] Bates and Vernon counties, Mo.

[f] Prevailing rate. There are local variations.

OUTLYING FIELDS, 1923

Inside day wages					Outside day wages			
Track layers	Drivers	Timber-men	Pipe-men	Class not specified in contract	Black-smiths	Engi-neers (high)	Engi-neers (low)	Class not specified in contract
$	$	$	$	$	$	$	$	$
6.85	6.95	6.85	6.75	6.59	...	....	....	6.06
7.26	7.26	7.26	7.18	6.74	8.10	7.30	7.30	
7.50	7.50	7.50	7.42	7.27				
7.75	7.50	7.50	7.50	7.25	7.79	8.00	8.00	6.86
7.50	7.36	...	7.42	7.25	...	218.16[b]	198.32[b]	
7.50	7.50	7.50	..	7.25	...	218.16[b]	198.32[b]	
7.50	7.50	7.50	..	7.25	...	218.16[b]	198.32[b]	
7.50	7.50	7.50	..	7.25	...	218.16[b]	198.32[b]	
7.50	7.50	7.50	..	....	8.01	209.16[b]	192.81[b]	6.86
7.50	7.50	7.50	..	....	8.01	290.16[b]	192.81[b]	6.86
7.50	7.50	7.50	..	....	8.01	209.16[b]	192.81[b]	6.86
7.50	7.50	7.50	7.42	7.25	8.01	209.16[b]	192.82[b]	6.86
7.50	7.50	7.50	7.42	7.25	8.01	209.16[b]	192.82[b]	6.86
7.50	7.50	7.50	7.42	7.25	8.01	209.16[b]	192.82[b]	6.86
7.502	7.502	7.502	..	7.252	8.007	209.16[b]	192.82[b]	6.8625
7.502	7.502	7.502	..	7.251	8.007	209.16[b]	192.82[b]	6.8625
7.502	7.502	7.502	..	7.251	8.007	209.16[b]	192.82[b]	6.8625
7.92	7.92	7.92	..	7.78	8.30	217.00[b]	217.00[b]	6.94
8.39	8.18	8.39	8.34	7.97	8.60	8.50	8.07	7.45

[g] Contract between Southwestern Coal Operators' Association and the United Mine Workers of America.

[h] Contract between Oklahoma Coal Operators' Association and the United Mine Workers of America.

[e] Separate scale for each mine. Only a few have machine scales.

[j] Only rates per square foot are given.

APPENDIX D

Tonnage Rates and Index Numbers of Pick Tonnage Rates at Basing Points, Central Competitive Field, 1898–1923

(1898 = 100)

Year	Hocking Valley				Pittsburgh thin vein				Indiana Bituminous				Danville, Ill.	
	Screened rate	Mine run rate	Index number		Screened rate	Mine run rate	Index number		Screened rate	Mine run rate	Index number		Mine run rate[i]	Index number, mine run
			Screen	Mine run			Screen	Mine run			Screen	Mine run		
1898	$0.66	$0.47½	100	100	$0.66	$0.4266	100	100	$0.66	$0.40	100	100	$0.40	100
1900	0.80	0.57½	121	121	0.80	*f*	121	*f*	0.80	0.49	121	122	0.49	122
1903	0.90	0.64⅜	136	136	0.90	*f*	136	*f*	0.90	0.54	136	135	0.55	137
1904	0.85	0.60⅝	129	129	0.85	*f*	129	*f*	0.85	0.51	129	127	0.52	130
1906*a*	0.90	0.64⅜	136	136	0.90	*f*	136	*f*	*f*	*f*	*f*	*f*	0.55	130
1908*b*	0.90	0.64⅜	136	136	0.90	*f*	136	*f*	0.90	0.55	136	137	0.55	130
1910*a*	0.95	0.67¾	144	144	0.95	0.614	144	144	*f*	*f*	*f*	*f*	0.58	145
1912	1.00	0.71⅛*h*	151	151	1.00	0.6464	151	151	$1.00	0.61	151	152	0.61	152
1914*a*	*c*	0.676	*c*	143	1.00	0.6764	151	158	1.00	0.61	151	152	0.61	152
1916	*c*	0.6764	*c*	143	*c*	0.6714	*c*	158	*c*	0.64	*c*	160	0.64	160
1917*d*	*c*	0.7764	*c*	165	*c*	0.7764	*c*	181	*c*	0.74	*c*	185	0.74	185
1917*e*	*c*	0.8764	*c*	186	*c*	0.8764	*c*	205	*c*	0.84	*c*	210	0.84	210
1919*f*	*c*	0.9864	*c*	209	*c*	0.9864	*c*	231	*c*	0.95	*c*	237	0.95	237
1920*g*	*c*	1.1164	*c*	237	*c*	1.1164	*c*	261	*c*	1.08	*c*	270	1.08	270
1923	*c*	1.1164	*c*	237	*c*	1.1164	*c*	261	*c*	1.08	*c*	270	1.08	270

a Local settlements.
b Status quo continued. Local settlement in Illinois.
c Screen rate eliminated.
d April agreement.
e November agreement.
f Garfield award, November, 1919.
g U. S. Bituminous Coal Commission award, April, 1920.
h Based on percentage ratio of screened to mine-run coal.
i No screen rate since 1898.
j Data not available.

APPENDIX E

INSIDE DAY RATE WAGE RATES AND INDEX NUMBERS OF INSIDE DAY RATES AT BASING POINTS, CENTRAL COMPETITIVE FIELD, 1898–1923

(1898 = 100)

Year	Tracklayers		Drivers		Timbermen		General inside labor	
	Rate	Index number	Rate	Index number	Rate	Index number	Rate	Index number
1898	$1.90	100	$1.75	100	$1.90	100	$1.75	100
1900	2.28	120	2.10	120	2.10	110	2.10	120
1903	2.56	135	2.56	146	2.56	135	2.36	135
1904	2.42	127	2.42	138	2.42	127	2.23	127
1906[a]	2.56	135	2.56	146	2.56	135	2.36	135
1908[b]	2.56	135	2.56	146	2.56	135	2.36	135
1910[a]	2.70	142	2.70	154	2.70	142	2.49	142
1912	2.84	149	2.84	162	2.84	149	2.62	150
1914[a]	2.84	149	2.84	162	2.84	149	2.62	150
1916	2.98	157	2.98	170	2.98	157	2.75	157
1917[c]	3.60	189	3.60	206	3.60	189	3.35	191
1917[d]	5.00	263	5.00	286	5.00	263	4.75	271
1920[e]	6.00	316	6.00	343	6.00	316	5.75	328
1920[f]	7.50	395	7.50	428	7.50	395	7.25	414
1923	7.50	395	7.50	428	7.50	395	7.25	414

[a] Local settlements.
[b] Status quo continued. Local settlement in Illinois.
[c] April agreement.
[d] November agreement.
[e] U. S. Bituminous Coal Commission award, April.
[f] August agreement.

APPENDIX F

LABOR COSTS IN 1920

Since there were two wage advances granted to labor in 1920 it is necessary to secure a weighted average of the increase in labor costs for the year 1920 over 1914. Wage advances prior to November, 1919, increased the labor cost of producing coal by $1.15 per ton. The advance of April 1, 1920, increased labor costs by 30 cents more and that of August, 1920, by a further 25 cents.

Bituminous coal production from January to April, 1920, amounted to 138,653,000 tons. The increased labor cost of $1.15 must be applied to this production: Adding to $1.15 the increase of 30 cents which resulted from the wage advance of April, we get $1.45 which must be applied to the output from April to August. Coal production in those four months amounted to 170,688,000 tons. Considering finally the further 25-cent increase in labor costs which followed the rate advance of August, we arrive at $1.70, which represents the advance that had to be borne by the producton of the five months ending December 30.

The increase in labor costs over 1914, then, run as follows:

	Production, tons	Increased labor cost per ton[a]	Total increased labor cost
January 1–April, 1920..	138,653,000	$1.15	$159,450,000
April 1–August 1, 1920..	170,688,000	1.45	247,497,000
August 1–Dec. 30, 1920..	259,326,000	1.70	440,854,000
Total.....	568,667,000	....	$847,801,000

[a] See table 237.

The total increase in labor costs over 1914, then, amounted to $847,801,000 for the output of 1920. Dividing this amount by the production for the year, namely 568,667,000 tons, we get an average cost per ton over 1914 of $1.49.

APPENDIX G

AVERAGE DAILY EARNINGS OF MINERS WORKING FULL OPPORTUNITY DURING THE TEN MONTHS, JANUARY TO OCTOBER, 1919, IN SELECTED MINES IN THE FIELDS COMPRISING THE CENTRAL COMPETITIVE FIELD, BY FIELDS *

Field	Number of mines	Pick miners	Machine loaders	Machine cutters
Pittsburgh Thick Vein	7	$7.15	$5.77	$8.04
Pittsburgh Thin Vein	14	6.02	5.90	6.80
Eastern Ohio	18	6.06	5.55	6.15
Southern Ohio	32	7.28	5.95	7.04
Indiana	23	7.20	6.93	7.47
Southern Illinois	15	....	7.14	7.88
Southern Springfield	9	6.53	6.62	7.60
Northern Springfield	9	5.54	5.56	5.32
Fulton-Peoria	6	6.23	5.41	8.72
Northern Illinois	4	4.90	6.22	6.40
Fifth and Ninth Districts, Ill.	13	6.46	6.22	6.36
Average 11 fields	..	$6.34	$5.99	$7.07
Highest field	..	7.28	7.14	8.72
Lowest field	..	4.90	4.86	5.32

* Compiled from tables furnished by the Bureau of Coal Economics, National Coal Association, showing average daily earnings as reported by the operators of selected mines in each field by occupations and by percentage of full opportunity worked. The number of days each mine operated is counted as full opportunity.—*Reprinted from Bloch, Louis, The Coal Miners' Insecurity: Russell Sage Foundation, p. 39, 1922.*

APPENDIX H

EARNINGS OF MINERS IN SHIPPING MINES IN ILLINOIS, HAND AND MACHINE WORK, 1921–22, BY SUBDISTRICTS*

Subdistrict	Hand mining					Machine mining			
	Average number of days worked	Number of miners	Total earnings for year	Average earnings per man		Total miners and machine men	Total earnings for year	Average earnings per man	
				Per year	Per day			Per year	Per day
First	115	2,565	$1,390,455	$542	$4.71	611	$290,982	$476	$4 14
Second	152	883	804,071	911	5.99	1,419	1,249,729	881	5.80
Third	125	711	609,924	858	6.86	952	735,625	773	6.18
Fourth	157	5,575	5,670,650	1,017	6.48	742	963,814	1,299	8.27
Fifth	129	2,303	2,391,946	1,039	8.05	2,772	3,728,160	1,345	10.42
Sixth	127	391	311,735	797	6.28	6,373	7,300,914	1,146	9.02
Seventh	127	760	619,008	814	6.41	2,951	3,395,748	1,151	9.06
Eighth	111	3,303	3,078,339	932	8.40	2,140	2,479,515	1,159	10.44
Ninth	127	1,742	1,746,878	1,003	7.90	3,453	3,535,517	1,012	7.97
Tenth	123	689	768,712	1,116	9.07	8,393	8,982,948	1,077	8.76
Eleventh	130	84	75,030	893	6.87	3,923	3,943,031	1,005	7.73
Twelfth	123	4,070	4,395,847	1,080	8.78	3,968	4,215,247	1,062	8.63
State	127	23,080	$21,862,595	$947	$7.46	37,687	$40,821,230	$1,083	$8.53

* Forty-first Ann. Rept. Dept. Mines and Minerals, Illinois, year ending June 30, 1922, p. 99. (In column 3 the summation should be 20,076 instead of 20,080.)

APPENDIX I*

Some Suggested Changes in the Wages System and Their Probable Results.

One can not bring a discussion of wage rates to a close without mentioning the larger possibilities that lie beyond the realm of immediate application. Like all other changes these possibilities must be considered in the light of their effects on the bituminous industry as a whole. Their consequences must be assayed in terms of the consumer's welfare, both present and future, as well as in the light of their effect on the operator and miner. Two suggestions recently given currency are a wages pool and a profits pool.

The Wages Pool.—A wages pool would take the machinery of wage payment out of the hands of the individual operator and concentrate it in the industry as a whole. That is to say, all operators would contribute to a wage fund in accordance with some definite principle, as, for example, a certain amount for each ton of coal produced or for each miner appearing on the payroll each day.[1] Out of this fund all wages would then be distributed at prescribed rates. Such a scheme would make wages dependent on the "ability to pay" [2] of the industry as a whole rather than on the "ability to pay" of the individual operator. It would make possible more uniform earnings and would remove from the

* This Appendix is really a footnote to Chapter XIV.

[1] Hamilton, W., and May, S., The Control of Wages, p. 74, 1923.

[2] Idem.

shoulders of the thin-vein miner part of the burden of maintaining the poorer seams. It would remove from the thin-vein operator the burden of higher wage rates, for part of his wage bill would in fact be paid by his more favorably circumstanced competitors. His competitive position would be more favorable than it is today and he could more sedulously exploit his thin-vein resources. In that event we might look for a greater overdevelopment in the bituminous industry than we even now have and with this, in all probability, greater irregularity, more destructive competition, more frequent shutdowns, and more wasteful depletion of our natural resources.[1]

The probable consequences arising from the wages pool make this method of wage payment economically undesirable. Moreover, it is highly improbable that such a system of wage payments could be effectively instituted in the American coal industry. The highly competitive nature of the industry, the absence of a uniform labor policy, and the prevalence of nonunion operations are obstacles too great to overcome in the immediate future. In view of present conditions nothing less than a governmental edict could cause the inauguration of a wages pool and such action is indeed beyond immediate expectation.

The Profits Pool.—The profits pool is nothing more than a system of profit sharing, wherein the surplus profits of an industry are distributed to

[1] If overexpansion were eliminated many of the objections raised above would in all probability become invalid.

capital and labor according to a given formula. The profits pool has been in effect in the British coal industry since 1921. According to the Coal Mine Act of July, 1921, the miners became entitled to a share in the surplus profits of the district in which they are employed. Such surplus profit has been defined as the surplus remaining from gross income after wages, other production costs, and a standard profit equal to 17 per cent of the standard wage bill have been paid out. The surplus thus remaining to the individual operators is then put into a district pool and distributed to labor and capital at a ration of 83 to 17. In the event that the income of a given district is not large enough to yield to the operators a standard profit, the deficiency is carried forward to the next accounting period as a prior claim on any surplus that may accrue in the future.

This system has the advantage of giving to the miner a share in the profits of his district. It does away with the tendency toward limiting production on the part of the miner and gives him an interest in the elimination of wasteful practices. It assures to the disadvantageously circumstanced operator a share in the surplus profits of his competitor and it gives to the miner a share in the prosperity of his district. At the same time no matter how poor conditions may be his standard wage rate [1] is guaranteed.

[1] The standard rates are the rates paid in the respective districts in 1914 plus about 30 per cent.—*Cole, G. D. H., Labor in the Coal Industry, p. 236, Oxford, 1923.*

Movement in the direction of a profits pool in the American bituminous industry was suggested by the U. S. Coal Commission. Such a scheme would no doubt prove beneficial from the point of view of increased efficiency. It would also give to the miner a personal interest in the affairs of his industry—an interest which has long been sorely needed. Unless the system brought with it a complete readjustment in standard rates, however, it is hard to see wherein it would help solve the difficulties which today beset the industry. If the going wage rates are retained as the standard, as was practically done in Great Britain, all of the weaknesses of the machine, freight, and thin-vein differentials would still remain. Then, too, the unfavorably situated operator would be given an added stimulus to operate his properties, for the income of his labor as well as his own earnings would be supplemented by the surplus profits of the more fortunate operators in his district. Moreover, there would still be the nonunion operator to consider. Unless he were included in the profits pool little or nothing would come of it. But his inclusion would mean surrender of his control of wage rates and such a surrender would mean loss of his strategic position.

In last analysis it is the elimination of overexpansion and its evil consequences that will help bring the coal industry out of chaos, and no cursory analysis of either the wages pool or the profits pool discloses any probability that they can bring this goal into view.

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